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OF THE

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THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

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TO READERS AND CORRESPONDENTS.

Dr. JACKSON's Observations on Delirium Tremens; Dr. GEDDINGS's Reflections on the Employment of Strychnine in Paralysis; Dr. FAHNESTOCK on the Employment of External Medications, and the Review of MACCULLOCH on Intermittent Diseases, have been crowded out of the present Number: they shall appear in our next.

We have also received Communications from Professor MOTT, Drs. HEUSTIS, CARTWRIGHT, J. MITCHELL, J. K. MITCHELL, P. FAHNESTOCK, VACHE, FAUST, RIVINUS, and LEHMAN, which shall receive an early attention.

The following publications have been received:—

Système Analytique des connaissances positives de l'Homme, restreintes a celles qui proviennent directement ou indirectement de l'observation. Par M. le Chevalier de LAMARCK, M. R. A. S. &c. Germer Bailliere, Paris, 1830.

Traité de la Réunion Immediate et de son Influence sur les Progrès Récens de la Chirurgie dans toutes les Opérations, ouvrage dans lequel on compare les principes suivis dans les diverses ecoles et les résultats obtenus dans les Grands Hôpitaux de France. Par M. SERRE, Professeur Agrégé a la Faculté de Montpelier, &c. Paris, Gabon, 1830, pp. 571, 8vo. 3 Plates.

Réplique aux Observations de M. PARISET, Secrétaire Perpétuel de l'Academie Royal de Medecine sur son Expérience de Désinfection faite a Tripoli en Syrie. Par J. BURDIN, Membre Honoraire. (From the Author.)

Manuel Complet de Medecine Légale, considerée dans ses rapports avec la Législation Actuelle; ouvrage particulièrement destiné a MM. les Médecins, Avocats, et Jurés. Par C. SEDILLOT, D. M. P. Crochard, Paris, 1830. pp. 511. 8vo.

The Annual Address to the Graduates of the Medical College of South Carolina. Delivered March 19th, 1830, after conferring the Degree of Doctor of Medicine. By THOMAS Y. SIMONS, M. D. President of the Medical Society of South Carolina (From the Author.)

Outlines of the Science of Life, which treats Physiologically of both Body and Mind; designed only for Philosophers and other Candid Persons. To which are added Essays on other subjects. By ELISHA NORTH, M. D. of the Connecticut Medical Society, &c. New York, 1829. pp. 208. 8vo. (From the Author.)

Observations on the Blood. By WILLIAM STEVENS, M. D. &c. Read at the Royal College of Surgeons, May 3d, 1830. (From the Author.)

Lectures on the Theory and Practice of Surgery. By JOHN ABERNETHY, F. R. S. &c. New York, C. S. Francis. (From the Publisher.)

The Influence of Modern Physical Education of Females in producing and confirming Deformity of the Spine. By E. W. DUFFIN, Surgeon. C. S. Francis, New York. (From the Publisher.)

Method of Using the Chloride of Soda, either for Dressing Ill-conditioned Sores, or as a means of Purifying Unhealthy Places, and of Disinfecting Animal Substances. By A. G. LABARRAQUE, Chevalier of the Legion of Honour, and Member of the Royal Academy of Medicine. Translated by JACOB PORTER, New Haven, 1830. (From the Translator.)

A Dissertation read before the Massachusetts Medical Society, on the Importance and Manner of Detecting Deep-seated Matter. By NATHANIEL MILLER, M. D. of Franklin, Mass. June, 1827. Boston, pp. 16. (From the Author.)

On the Connexion between Cutaneous Diseases which are not Contagious, and the Internal Organs. By USHER PARSONS, M. D. Professor of Anatomy, &c. Providence, R. I. Dissertation which received the Boylston Prize, for 1830. (From the Author.)

Essays on the Medical Institutions of Naples, No. I. (From R. LA ROCHE, M. D.)

Journal der Chirurgie und Augen-heilkunde. Herausgegeben von C. F. v. GRAEFE und PH. v. WALTHER. Band 13, Heft 3 and 4. Band 14, Heft 1. (In exchange.)

Journal des Progrès des Sciences et Institutions Médicales, 2d series, Vols. II., III. (In exchange.)

Bulletin des Sciences Médicales. March, April. (In exchange.)

Archives Générales de Medecine. May, June. (In exchange.)

Répertoire Général d'Anatomie et de Physiologique, Pathologique et de Clinique Chirurgicale. (In exchange.)

Journal Général de Médecine, de Chirurgie et de Pharmacie Francaises et Etrangères. May, June. (In exchange.)

La Clinique Annales de Médecine Universelle. Tom. II. No. 40—52. Tom. III. No. 1—11. (In exchange.)

Mémorial des Hôpitaux du Midi, et de la Clinique de Montpelier. April, May, June. (In exchange.)

Annales de la Médecine Physiologique. April, May, June. (In exchange.)

Journal de Chimie Médicale, de Pharmacie, et de Toxicologie. June, July. (In exchange.)

Journal Universel des Sciences Medicales. April, May. (In exchange.)

Revue Médicale Francaise ét Etrangeres. April, May, June, July. (In exchange.)

The London Medical Gazette. May, June, July, 1830. (In exchange.)

The Medico-Chirurgical Review. July, 1830. (In exchange.)

The London Medical and Surgical Journal. May, June, July, August, 1830. (In exchange.)

The London Medical and Physical Journal. May, June, July, 1830. (In exchange.)

The Midland Medical and Surgical Reporter, or Topographical and Statistical Journal. May and August, 1830. (In exchange.)

The Edinburgh Medical and Surgical Journal. July, 1830. (In exchange.)

The Glasgow Medical Journal, Vol. I. Nos. 3 and 4, and Vol. III. No. 10.

The Western Journal of the Medical and Physical Sciences. July, 1830. (In exchange.)

The Transylvania Journal of Medicine and the Associate Sciences. May and August, 1830. (In exchange.)

The North American Medical and Surgical Journal. October, 1830.

The Boston Medical and Surgical Journal, Vol. III. Nos. 10—36. (In exchange.)

For the gratification of our contributors we continue the references to the works, in which they will find notices to their communications; these references are, of course, restricted to the Journals received during the preceding three months.

Professor **Mott** will find his Case of Ligature of the Carotid for Aneurism of the Innominata, noticed in the Journal des Progrès, Vol. II. 1830—Guthrie on the Diseases and Injuries of Arteries—London Medical and Surgical Journal, for June—London Medical and Physical Journal, for August—N. A. Medical and Surgical Journal, for October, 1830.

Professor **Mussey**'s Case of Ligature of both Carotids, is noticed in the Journal des Progrès, Vol. II. 1830—Revue Médicale, for May—London Medical and Physical Journal for June, and London Medical and Surgical Journal, for June, 1830.

Professor **Jackson**'s paper on Absorption is republished in the Annales de la Médecine Physiologique, for June, and in the Journal des Progrès, Vol. III. 1830—his Cases of Croup are noticed in the Western Journal of the Medical and Physical Sciences, for July—his Case of Absence of Pulse, in the London Medical Gazette, for June—his Case of Hematosis, in the Western Journal of the Medical and Physical Sciences, for July.

Professor **Coxe**'s Description of the Jalap Plant, is noticed in the Western Journal of the Medical and Physical Sciences, for July.

Professor **Bigelow**'s Method of Affording Respiration to Children in Reverse Presentations, is noticed in the Journal des Progrès, Vol. II. 1830.

Professor **Horner**'s Case of Acute Gastritis supervening on Chronic, is copied into the Medico-Chirurgical Review, for July—his Cases of Infantine Follicular Inflammation, are noticed in Monro's Treatise on the Morbid Anatomy of the Gullet, Stomach, and Umbilicus.

Dr. **Wright**'s Hospital Reports in No. VIII. are noticed in the Medico-Chirurgical Review, for July—his paper on Delirium Tremens is noticed in the Western Journal of the Medical and Physical Sciences, for July—his case of Concrescibility of the Blood, is republished in the London Medical and Physical Journal, for July—his Case of Gangrene of the Lower Extremity, is copied into the Journal des Progrès, Vol. II. 1830—and his Observations on the Sedative Effects of the Spider's Web, will be found in the London Medical and Physical Journal, for July, 1830.

Dr. **Hayward**'s Case of Paruria Inops is copied into the London Medical and Physical Journal, for June, and into the Transylvania Journal, for August.

Dr. **Simons**'s paper on Pyroligneous Acid, is noticed in the Revue Médicale, for May—London Medical and Physical Journal, for May—London Medical and Surgical Journal, for June—Archives Générales, for June—and the Journal des Progrès, Vol. III. 1830.

Dr. **Heustis**'s Case of Gun-shot Wound is copied into the London Medical and Physical Journal, for August, 1830.

Dr. **Byrne**'s paper on the Use of Tartar Emetic in Chorea, is copied into the

Revue Médicale, for May, and into the London Medical and Physical Journal, for July—and his Case of Recto-Vesico-Vaginal Fistula, is copied into the Boston Medical and Surgical Journal, for July 20, 1830.

Dr. Mitchell's paper on the Treatment of Chronic Dysentery, is noticed in the Cincinnati Medical Journal, and in the Boston Medical and Surgical Journal. for August 3, 1830.

Dr. Randolph's Case of Excision of the Lower Jaw, is noticed in the Journal des Progrès, Vol. III. 1830.

Dr. Jackson's paper on Rhubarb in Hæmorrhoids, is noticed in the N. A. Medical and Surgical Journal, for October, 1830.

Dr. Hamilton's paper on the Use of Turpentine in Strangulated Hernia, is noticed in the London Medical and Physical Journal for May, and in the Transylvania Journal, for August, 1830.

Dr. Gaylord's Case of Invagination of the Intestine, is noticed in the Revue Médicale, for May, and in the Journal des Progrès, Vol III. 1830.

Dr. Toy's Case of Pregnancy is noticed in the Western Journal of the Medical and Physical Sciences, for July, and in the London Medical and Surgical Journal, for August.

Dr. Levert's Experiments on Metallic Ligatures, are noticed in Gräfe and Walther's Journal, Band XIII. Heft 3.

Dr. Peirce's Case of Perforation of the Stomach, is copied into the Revue Médicale, for May, 1830.

Dr. Duane's Account of a Human Monster, is copied into the Revue Medicale, for May.

Dr. Dakin's communication on the Use of Arsenic in large doses for the cure of Intermittent Fever is noticed in the Boston Medical aud Surgical Journal, for August, 31st.

Dr. Henderson's Case of Disease of the Bones cured by Arsenic, is noticed in the London Medical and Surgical Journal, for June, and in the Journal de Chimie Médicale, for June, 1830.

Dr. Hendrie's Case of Ruptured Uterus is noticed in the N. A. Medical and Surgical Journal, for October.

Dr. Hopton's Case of Tracheotomy is noticed in the Transylvania Journal, for May, 1831.

Authors of new medical books, desirous of having them reviewed or noticed in this Journal at the earliest opportunity, are invited to transmit to the *Editor* a copy as soon after publication as convenient, when they will receive prompt attention. Under ordinary circumstances, very considerable delay is caused by the circuitous routes through which they are received.

Papers intended for publication, should be sent, *free of expense*, as early after the appearance of the Journal as possible, in order to be in time for the ensuing number. Such communications should be addressed to "Carey & Lea, Philadelphia, for the Editor of the American Journal of the Medical Sciences," or may be deposited with Professor J. C. Warren, M. D. Boston—C. Drake, M. D. New York, or Professor S. H. Dickson, M. D. Charleston, S. C.

All letters on the *business* of the Journal to be addressed exclusively to the publishers.

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Elements of Physiology. By Dr. Charles Asmund Rudolphi, Professor of Med. &c. Berlin, Vols. I., II., and III., 1821—1828 - - - 149

XI. Des Hémorrhoïdes, ou Traité Analytique de toutes les Affections Hemorrhoïdales. Par A. J. Montègre. 1 Vol. in 8vo. 2d edition. Publiée par sa Neuve. Paris, 1830 - - - - - - - - - - 179

XII. Traité des Plaies de Tête et de l'Encéphalite, principalement de celle qui leur est consécutive; ouvrage dans lequel sont discutées plusiers questions relatives aux fonctions du système nerveux en général. Par J. P. Gama, M. D. Professeur a l'Hopital Militaire d'Instruction du Val-de-Grace. Paris, 1830.

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Treatise on Injuries of the Head, and of Encephalitis. By J. P. Gama, M. D. &c. - - - - - - - - - - - - - 193

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XIII. The Dyspeptic's Monitor; or the Nature, Causes, and Cure of the Diseases called Dyspepsia, Indigestion, Liver Complaint, Hypochondriasis, Melancholy, &c. By S. W. Avery, M. D. New York, 1830. pp. 152, 8vo. - - - - - - - - - - - - - - 204

XIV. Theorie der Krankheit, oder Allgemeine Pathologie. Von Ph. C. Hartmann, Doct. und k. k. Professor der Heilkunde, an der Universitat, en Wien. Nach dem latinischen Originale, frey bearbeitet, vom Verfasser. Wien, 1823, pp. 614.

Theory of Diseases, or General Pathology. By Ph. C. Hartmann, Doct. of Med. and Professor in the University of Vienna, &c. - - - 210

XV. Nouvelles Recherches sur l'Endosmose et l'Exosmose, suivies de l'Application Expérimentale de ces Actions Physiques a la Solution du Problème de l'Irritabilité Végétale, et à la Détermination de la Cause de l'Ascension des Tiges et de la Descente des Racines. Par M. Dutrochet, Correspondent de l'Institute, &c. 8vo. pp. 106. Paris, 1828 - 211

XVI. Encyclopädisches Wörterbuch der medicinischen Wissenschaften. Herausgegeben von den Professoren der medicinischen Facultat zu Berlin. C. F. v. Graefe, C. W. Hufeland, H. F. Link, K. A. Rudolphi. Dritter Band. (Antiphathie—Attractio) Berlin, 1829, und Vierter Band, (Attrahentia—Band,) 1830 - - - - - - - - - 213

XVII. Handbuch der speciellen, medicinischen Pathologie und Therapie, für akademische Vorlesungen bearbeitet. Von Johann Nep. Edlen von Raimann, der Heilkunde Doctor k. k. Med. ersterer Regierungsrathe. Professor der speciellen Therapie, und Medicinischen Klinik, &c. &c. 2 Bände. Wien, 1826.

Manual of Special Medical Pathology and Therapeutics. By J. N. von Raimann, M. D. &c. Third edit. enlarged and improved. 2 vols. Vienna, 1826 - - - - - - - - - - - - - - 214

XVIII. Manuel Complet de Médecine Légale, considérée dans ses rapports avec Legislation Actuelle; ouvrage particulièrement destiné a MM. les Médecins, Avocats et Jurés. Par C. Sedillot, D. M. P. Paris, 1830, pp. 511, 12mo. - - - - - - - - - - - - 216

XIX. Lectures on the Theory and Practice of Surgery. By John Abernethy, F. R. S. &c. C. S. Francis, New York, 1830. pp. 190, 8vo. - 218

XX. Recherches Anatomiques, Physiologiques et Pathologiques sur le Systeme Veineux. Par M. G. Breschet. 7 Livraisons, Fol. Paris, 1829 - 219

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XXII. Manual of Therapeutics. By L. Martinet, D. M. P. translated, with alterations and additions. By Robert Norton, M. D. Extraordinary Member of the Medical Society of Edinburgh. London, 1830, pp. 323, 12mo. 220

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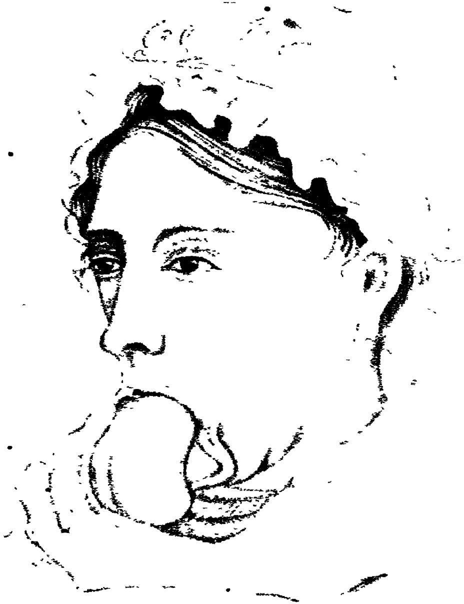

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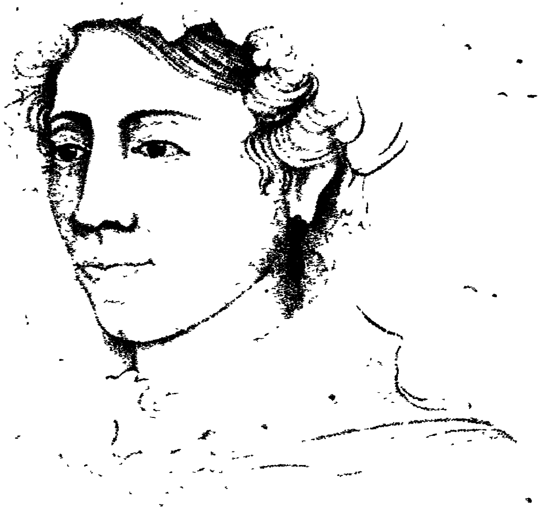

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Art. I. *Chronic Intumescence of the Tongue.* By Thomas Harris, M. D. Surgeon of the United States' Naval Hospital in Philadelphia, and one of the Surgeons of the Pennsylvania Hospital. [With a Plate.]

Margaret Lawson, aged twenty-four, a native of Ireland, was admitted June 1st, 1829, into the Pennsylvania Hospital, with a chronic enlargement of the tongue.

Her mother states that until the age of four years her daughter enjoyed robust health. Without any previous indisposition, she was awoke from sleep with severe pain in her tongue. In the morning she observed that it was swollen and slightly protruded between her teeth, accompanied with great thirst and heat of skin. Against the following evening, the tongue had enlarged so as to project from her mouth three inches. In this protruded state it uninterruptedly continued, increasing with the growth of her body.

The disease for several weeks was accompanied with great pain and difficulty of deglutition. After this period her sufferings gradually decreased, until she became comparatively easy. She was unable for years to articulate intelligibly, but acquired by degrees the power of speech, though her tones were always thick and hoarse. Whilst speaking, an effort was made to give to that portion of the tongue which was within the mouth, its natural movements.

At the period when she first consulted me, her tongue was of the following dimensions:—

Length of protrusion from the upper incisors to the most depending part of the organ, four inches;—around its edge from the canine teeth on either side, seven inches and one-fourth;—circumference, six inches and three-fourths;—vertical thickness, one inch and three-fourths.

The prolapsed portion of the tongue seemed materially changed in structure, was extremely dense, of a dark chocolate colour, and constantly covered with a slimy exudation. The part within the mouth was entirely free from disease, was natural in width and appearance with the exception of an enlargement of the papillæ maximæ to four or five times their natural dimensions.

The weight of the tongue drew the os hyoides and larynx upwards and forwards; the incisors and canine teeth of the inferior maxillary bone were forced horizontally forwards, and on the teeth of the left side there was a large deposit of tartar, of the size of a walnut, which, pressing on the under surface of the tongue, caused a painful ulceration. It was indeed the distressing inconvenience arising from this ulcer, which induced her to apply for professional assistance.

From the circumstance of the inferior maxillary bone being kept constantly open, it had lost in some degree its natural angle. There was also a curvature of the jaw, the concavity being upwards, commencing anterior to the angle, and terminating near the symphysis, by which the patient could bring the grinders of her upper and lower jaws in contact. She was thus enabled to perfectly masticate her food notwithstanding the anterior part of her jaws were separated nearly two inches.

The lower lip was so inverted, that the upper margin of it was turned over the chin. Except when eating, the saliva flowed constantly from the mouth, which greatly aggravated the inconvenience of the disgusting deformity.

For the purpose of affording present relief from the painful effects of the ulcer, the inferior incisors and canine teeth were extracted. Under the use of mildly astringent washes, and a regulated diet, the ulcers on the inferior part of the tongue readily healed.

An effort was now made, agreeably to the plan proposed by Pierre Lassus, to lessen the magnitude of the organ, by the application of leeches and pressure, and then to force it into its natural situation. This measure produced great pain and irritation, and entirely failed of accomplishing the ends proposed. The tongue was too large to be forced back into the mouth, and if that part of the treatment had succeeded, still I must have failed, inasmuch as I could not, (from the altered shape of the lower jaw,) close the mouth so as to retain the organ in its proper position.

Though this distinguished surgeon reports several cases in which his plan of treatment proved successful, yet by referring to his cases it will be seen that they were of but few years standing, and that no material alteration in the structure of the tongue, or in the shape of the inferior maxillary bone had taken place.

After consulting with my colleagues, Drs. HEWSON and BARTON, it was determined to remove the protruded portion of the tongue. The case being a novel one, and apprehending troublesome hemorrhagy, it was determined to strangulate it by means of a ligature. We were partly led to this determination by the confident recommendation of Sir EVERARD HOME, who repeatedly removed diseased portions of tongue in this manner. According to his statement, neither great pain nor irritation, nor any other untoward symptom followed the operation.

On the 24th of June, assisted by my colleagues, and in the presence of the house surgeons, Drs. FOX and HAMMERSLY, and a large medical class, the operation was performed in the following manner. A needle four and a half inches long, slightly curved, and armed with a double iron wire, well annealed, was made to penetrate the inferior part of the tongue, at a point corresponding with the anterior edge of the inferior maxillæ, and was brought out opposite the superior incisor teeth. The ends of the wires were then separated, and passed through double cannulas placed on either side of the tongue. After twisting one end of each of the wires, to one of the arms of each of the cannulas, the other ends were forcibly drawn at the same time, by means of forceps, until the prolapsed organ appeared perfectly strangulated, when the other ends of the wires were fastened in the ordinary manner.

Though great force was used in the application of the wire, yet it was with regret I observed, in two hours after the operation, that the circulation was not entirely interrupted. A strong waxed silken ligature of eight threads was passed around the tongue in the furrow caused by the iron wire, and drawn with such tension as appeared to perfectly strangulate it. After the lapse of forty-eight hours, I had again the mortification to discover that the circulation was again fully restored, even to the apex of the tongue; that the portion of it within the mouth was painful and much swollen, and that her face was flushed, and accompanied by severe pain in the head and back.

In the present condition of the whole organ, further efforts at strangulation would seem injudicious, if not hazardous, and the removal of it with the knife offers the only alternative. With the consent and advice of my colleagues, it was amputated with a catlin directly through the depression formed by the ligature. The two principal arteries were immediately secured with ligatures. The others were permitted to bleed for some time, for the purpose of subduing the inflammation caused by the extreme irritation of the ligatures, after which, three additional arteries were tied. The wound was then dressed with dry lint, and secured by a roller, which was passed several times over the amputated stump and back of the neck, and terminated with a few turns over the top of the head and under the chin.

There was not found the slightest difficulty in arresting the hæmorrhagy. The pain caused by the knife was trifling indeed, when compared with the torture inflicted by the ligature. Not one unpleasant symptom followed the last operation. It has been therefore a subject of sincere regret to me, that I had not performed the operation of amputation in the first instance, as I thereby would have saved my patient much suffering. I have long thought that the practice of removing tumours by means of ligatures is a relic of barbarous surgery, and ought to be discarded, where the knife can with any degree of propriety be used. The result of this operation has strengthened my former convictions.

I have been thus particular, in order to deter others from pursuing a practice, which proved not only unsuccessful, but almost insupportably painful.

After the removal of the lint and bandage which was first applied, the wound was dressed several times a day with lint previously immersed in the mucilage of slippery elm, *Ulmus Americana.*

On the fourth day after the operation, the patient had a slight tumefaction of the tongue, accompanied with some fever and head-ache. These symptoms were all promptly relieved by the application of a few leeches to the throat, and under the chin. No untoward symptom occurring, the stump was perfectly healed on the seventeenth day after the operation.

The patient was still, however, greatly deformed. Having no controul over the muscles of the lower lip—it continued to hang over the chin—the obtuse angle of the lower jaw, its curvature downwards, and the elongation of the molar teeth, rendered it impossible to bring the anterior part of the jaws nearer to each other than an inch and an half.

To lessen this deformity, I drew the two last molar teeth of the lower jaw, which, as I have already stated were more than ordinarily long. The separation of the mouth still continued rather more than an inch. I did not despair, however, but that nature, which has the power of altering the condition of parts, so as to adapt them to new circumstances, and thus remedy defects, would in due time not only bring the parts in contact which had been unnaturally separated, but would restore the muscular power of the lip so as to give to the patient entire controul over it. This expectation has been fully realized. The angle of the inferior maxillary bone, and the downward curvature of it is changed, so that it has now acquired its natural position and movements. She has also acquired entire command of her lip. Her articulation is perfect with the exception of a slight lisp.

Her face, before the operation, besides being disgustingly offensive, contained an expression of the keenest anguish. It is now one of comeliness, cheerfulness, and content. Her mother told me a few days ago, that her poor daughter was no longer an object of loathing, but of admiration; that she was soon to be married to an intelligent, prudent, and thriving mechanic.

This is happily a rare disease. Cases of a similar kind, however, are to be found in the records of surgery, designated by the terms *Lingua Vitula*, *Lingua Propendula*, *Prolapsus Linguæ*, *Macroglossia*, &c. GALEN, MARCEI DONAT, and other early writers, have given brief notices of this affection. There is published in the first volume of the *Memoires de l'Institut National*, an interesting paper on the subject, entitled, "*Memoire sur le prolongement morbifique de la langue hors de la bouche*, par Pierre Lassus." In this publication is noticed several instances in which children were born with this disease. He has not only witnessed cases of this kind himself, but has collected others from CASPER PEUCER and ZACHIAS. When the tongue is found protruded at birth, Lassus infers that it was injured during delivery. He succeeded in effecting cures in recent cases by the simple method which I have already détailed, but he has greatly erred in supposing this method applicable to all cases.

It is stated in the "*Acta Litteraria et Scientiarum Sueciae*, anno 1732," Vol. III. that the Society of Medicine of Stockholm assembled in 1695, for the purpose of examining a girl of ten years old, who from her birth was disfigured by a protrusion of the extremity of her tongue from her mouth. It protruded four inches, and was two inches thick. She could neither close her mouth, retain her saliva, nor speak distinctly. It was determined in consultation to amputate the protruded portion of the tongue, and HOFFMAN, a celebrated surgeon of Stockholm was charged with the operation. The hæmorrhagy was restrained by the actual cautery. The case terminated so favourably that the patient could afterwards speak and swallow with perfect facility.

In the article *Langue*, in the *Dictionnaire des Sciences Médicales*, we find recorded an interesting case of protruded tongue, with an accompanying plate, by Baron PERCY. This case was also amputated successfully. There was found no difficulty in arresting the hæmorrhagy. He states that "the actual cautery, tenacula, ligatures, armed needles, styptics, and every other means to restrain terrible hæmorrhagy was prepared before the operation." Contrary to his expectations, the flow of blood was so very inconsiderable, that he did not find it necessary to employ even a ligature.

MIREAULT, a distinguished surgeon of Angers, operated successfully, in September, 1813, in the case of a chronic enlargement of the tongue of long standing, by means of the silken ligature. Though he represents his case under as favourable a point of view as truth would warrant, yet by a reference to his statement it will be seen, that he was obliged to re-apply the ligature twice, and that thirteen days elapsed between its first application, and the entire separation of the slough. The sufferings of the patient must doubtless have been severe, yet they are not noticed in his report.

It appears then that there are three methods by which this affection is treated. The first is by depletion, forcing the tongue into the mouth, and retaining it there by confining the jaws in contact by means of a roller—the second is by ligature, and the third by amputation. The first plan, which is that so confidently recommended by Lassus, is only adapted to recent cases. The second, though warmly applauded by Inglis and Home of England, and Mireault of France, is yet exceptionable, from the difficulty of interrupting the circulation—from its inducing inflammation and great pain in that part of the tongue within the mouth—from its tediousness in accomplishing the removal of the prolapsed portion of it, and from the inconvenience arising from the discharge of offensive matter before the strangulated part sloughs off.

From these considerations, I consider amputation the most preferable operation. The only possible objection to it is the apprehension of fatal hæmorrhagy. Judging from the reported cases in which this operation has been performed, and particularly from my own case, which is above detailed, I should not apprehend the slightest difficulty, in either arresting the flow of blood, or in any other part of the treatment. The celerity with which amputation may be performed, and the consequent diminution of suffering to the patient, furnish strong reasons for giving it a decided preference.

The subjoined plate will exhibit the condition of the patient before and after the operation.

Philadelphia, Sept. 8th, 1830.

Art. II. *Experiments and Observations on the Endosmose and Exosmose of Gases, and the Relation of these Phenomena with the Function of Respiration.* By Edwin D. Faust, M. D. of Columbia, S. C.

THE remarkable phenomena discovered by M. Dutrochet on the endosmose and exosmose of *liquids*, and the investigations of Dr. Togno, of Philadelphia, who repeated the experiments of the former eminent physiologist, and added some new ones to those previously performed in France, have been already placed before the readers of this Journal.* Both of these gentlemen have shown, that some of the important processes of the animal system hitherto referred to the agency of the vital principle, will, in all probability, be elucidated by the investigations in which they have engaged. They have even gone further, and applied the results of their observations with some success to therapeutics. Being convinced that the facts were destined to become useful in their application, and circumstances having prevented us from perusing the works of Dutrochet, we were about commencing a series of analogous experiments, when our attention was turned to another subject by a short article in the May number of the present Journal, (p. 217,) in which it was announced that Mr. Graham of Glasgow had discovered two instances of the above phenomena, in gases. In the first, a bladder loosely filled with coal gas, being brought into a receiver of carbonic acid, was fully dilated, in twelve hours, by the entrance of the latter, while a little coal gas had exuded. In the second, common air being substituted for the coal gas, the bladder was again fully inflated.

These being the only experiments stated to have been performed by Mr. Graham, we have instituted, and are now pursuing a series, in which we have examined the relations of various gases, most of which have furnished strong examples of endosmose or exosmose, according to circumstances. We have satisfied ourselves that the principle acts generally, if not universally among gases, and have reason to hope that the results of future experiments on the subject, will throw light on some pathological facts not hitherto explained.

It is principally to the illustration of the function of respiration, however, that we would invite the attention of our readers, who will, we hope, feel interested, in following us through our application of the preceding phenomena, to the various circumstances of that process, on the chemistry and physiology of which philosophers are so much at variance. We hope to clear up some doubtful points, and to reconcile some previously conflicting authorities. Before proceeding however to any other observations, we think it proper to state some of the opinions and experiments of others, and a few of our own, on the chemical changes produced in air by the blood.

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* Vol. I. p. 423, Vol. III. p. 194, and Vol. IV. p. 73.

It is allowed by all authorities, that air, when returned from the lungs, contains an increased proportion of carbonic acid, and a smaller proportion of oxygen, than air which has not been respired. Whether the quantity of oxygen lost is exactly equal to that acquired in the form of carbonic acid, is a disputed point. The experiments of Dr. PRIESTLEY led him to the conclusion that the carbonic acid evolved did not compensate for the oxygen consumed.* The same result according to Dr. BOSTOCK,† and others, was obtained by LAVOISIER, in experiments on the Guinea pig; and THOMSON states‡ that in experiments subsequently made by M. LAVOISIER, and of which, M. SEGUIN was the subject, the quantity of carbonic acid was diminished by nearly one-half.§ In 1806, Mr. DALTON, from a number of experiments concluded that the carbonic acid formed, exactly compensates for the oxygen consumed.‖ Dr. Thomson conducted experiments which indicated a loss of oxygen; but this loss was so variable, that he was disposed to refer it to something else than respiration.¶ Here he was wrong.

Several chemical authors would induce us to suppose that the evidence of Sir H. DAVY is the same as that of Mr. Dalton, but on examining his experiments,** it will be found that they confirm those of Priestley and Lavoisier, indicating a decided loss, (absorption,) of oxygen. The celebrated experiments of ALLEN and PEPYS†† led them to the conclusion that the carbonic acid exactly compensates for the oxygen consumed; and after this, the doctrine was generally adopted, until the more recent researches of EDWARDS,‡‡ which confirm those of Priestley. Dr. Prout has ascertained, according to Dr. Thomson[*] and others, that the quantity of carbonic acid varies at different hours of the day. The discordant results of these philosophers have at length been reconciled by Dr. Edwards, who, by numerous and very accurate experiments, has proved, that the quantity of oxygen consumed, and of carbonic acid formed, varies in different animals and at different times; and that while at times the loss of oxygen is almost nothing, it sometimes amounts to the large quantity of more than one-third of the volume of the carbonic acid produced.[†] The fact then that a considerable quantity of oxygen is usually but not always absorbed, and not returned, may be considered as established.

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* On air, MDCCXC. Vol. III. p. 379.

† Physiology, 1826, Vol. II. p. 94.

‡ Thomson's System, Cooper's edition, 1818, Vol. IV. p. 467.

§ The first experiments, however, are much more to be relied on, though all lead to the same conclusion.

‖ Thomson's System, 1818, Vol. IV. p. 468.

¶ Idem.

** Researches on Nitrous Oxide, &c. 1800, p. 434 to 438 inclusive.

†† Philos. Trans. for 1808, p. 279.

‡‡ De l'Influence des Agens Physiques sur la Vie; we shall take the liberty of quoting Edwards on the authority of Bostock, Thenard, and Turner, as the original is not in our possession.

The question whether the absolute volume of air is diminished by respiration, is answered affirmatively by those experiments of Dr. Edwards, in which a positive loss of oxygen is proved. Other authorities to the same effect are, according to Dr. Bostock, (some of the original works, not in our possession, being of course accurately quoted by him,) Mayow,[‡] Hales,[§] Davy,[‖] Lavoisier,[¶] Goodwyn,[**] Berthollet,[††] Jurine,[‡‡] and Spallanzani.[§§] Crawford, in his work on animal heat, p. 146, states, that animals confined in air, over mercury do not diminish it.[‖‖] But in the same page he states, that if the air be over water, it loses nearly one-fifth its volume, and therefore nearly the whole volume of its oxygen. Now as we know that an animal dies in air long before all the oxygen is consumed, it ought to follow, that, in the above case, a portion of nitrogen was lost. This must be considered when we come to the subject of nitrogen. Crawford must have been mistaken when he supposed the residual gas to consist almost entirely of nitrogen. Dr. Edwards has shown here, however, as before stated, that there is almost always a diminution, which varies according to circumstances.[¶¶] The experiments of Allen and Pepys do not overthrow this conclusion, since from their nature they could not be so accurate as those of Edwards.

[*] System, Vol. IV. p. 469; also Bostock's Physiology, Vol. II. p. 87.

[†] Bostock's Phys. Vol. II. p. 97.

[‡] Tract, p. 105.

[§] Stat. Essays, Vol. II. p. 238, 320.

[‖] Researches, p. 431.

[¶] Mem. Acad. Scien. pour 1780, p. 401; Ann. Chim. t. v. p. 261; Mem. Soc. Roy. Med. pour 1782-3, p. 572.

[**] Connexion of Life, &c. p. 51.

[††] Mem. Soc. D'Accueil, t. II. p. 454, 463.

[‡‡] Mem. Soc. Roy. Med. t. x. p. 25.

[§§] Mem. sur la Respir. p. 102.

[‖‖] Priestley and Boyle state the same fact.

[¶¶] Bostock's Physiology, Vol. II. p. 101.

We come now to the important question whether nitrogen is absorbed in respiration. Lavoisier asserts in the Mem. Acad. Scien. pour 1777, p. 193.[*] that no nitrogen is absorbed, and he is supported by Allen and Pepys.[†] Priestley, however, found a distinct absorption of nitrogen.[‡] and his opinion is confirmed by the experiments of Sir H. Davy.[§] Cuvier says of the air in breathing, "il s'y perd un peu d'azote,"[‖] but does not here state any experiments. Bostock[¶] quotes Dr. Henderson and Professor Pfaff, to the same effect. But physiologists were again puzzled by the researches of Nysten, Berthollet, and Despretz, which pointed out a positive increase, instead of a diminution of the nitrogen.[**] All these contradictions have, like the preceding, been reconciled by Dr. Edwards, who, by experiments made in the most accurate and careful manner, has proved, that there is sometimes a loss, sometimes a gain of nitrogen, while sometimes the change is very slight.[††] We can find, however, no reason for his conjecture, that a simultaneous absorption and exhalation of nitrogen is always going on, and that the result depends upon the predominance of one or the other of these processes. Having thus stated the three principal points in the chemical process of respiration, we shall here give from Thenard[‡‡] the results of Edwards's researches, adopting the opinions as our own, with the exception of the last article, and of the words "ou en partie." As regards the last article, we are satisfied, that whatever nitrogen enters the blood, goes to the uses of the system; and not that it is expelled from the blood merely to give place to another supply of the same gas. "L'oxigène qui disparait dans la respiration de l'air atmosphérique est absorbe en entier; il est ensuite porté en tout ou en partie dans le torrent de la circulation.

"Il est remplacé par une quantité plus ou moins semblable d'acide carbonique exhalé, qui provient en tout ou en partie de celui qui est contenu dans la masse du sang.

"En outre, l'animal respirant de l'air atmosphérique absorbe de l'azote; cet azote est porté en tout ou en partie dans la masse du sang.

"L'azote absorbé est remplacé par une quantité plus ou moins équivalente d'azote exhalé, qui provient en tout ou en partie du sang."

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[*] As quoted in Bostock's Physiology, Vol. II. p. 102.

[†] Phil. Trans. for 1808, p. 264.

[‡] On Air, MDÇCXC. Vol. III. p. 380.

[§] Researches, p. 434.

[‖] Leçons d'Anatomie Comparée, Paris, An. xiv. 1805, tom. IV. p. 303.

[¶] Physiol. Vol. II. p. 103.

[**] Turner's Chemistry, 1828, p. 432.

[††] Bostock's Phys. Vol. II. p. 105.

[‡‡] Traité de Chimie, 1827, tom. IV. p. 561.

Thus much for the present on respiration.

Air is acted upon by blood which has been removed from the veins. In this case, a portion of its oxygen is removed, and it is found to contain carbonic acid:* Whether any nitrogen is absorbed, we consider as uncertain; for though Thomson and some others state that no absorption was perceptible,† we must recollect that these gentlemen did not detect the same phenomenon in respiration, in which process we know it does take place. The question, however, is not important in this place.

Among the changes which venous blood undergoes in becoming arterial, the most remarkable is the red colour which it acquires. After all the objections against the opinion,‡ we are still inclined to consider the black colour of venous blood as due to the presence of an excess of carbon, free, or loosely combined. It will not redden without the removal of this carbon, or its more intimate union with the other constituents of the blood. Dr. Priestley found that arterial blood blackened when placed in vacuo.§ This has been supposed to show that the blackness is independent of carbon; but it by no means does so. A change has plainly occurred in the blood, by which the former arrangement of its constituents is destroyed. What fact goes to show that this change does not consist in the development of carbon? None! while all the collateral experiments and observations tend strongly to show that such is the case. The same chemist discovered that arterial blood is slowly darkened by nitrogen.‖ Here, as before, the observations just made are perfectly applicable. According to Dr. Thomson,¶ Fourcroy obtained the same result from hydrogen. The above remarks apply again, but in addition, Dr. Edwards has shown that blood absorbs hydrogen;** and here it is self-evident that the hydrogen has united with oxygen, nitrogen, or carbon, or with two or more of them; hence, in the chemical revolution which occurs, a portion of carbon is no doubt set free or loosely combined. Dr. Thomson states in the page last quoted, and on the authority of Fourcroy, that arterial blood left in oxygen gradually darkens: and that after this change, oxygen will not redden it. This we consider very interesting, as indicating that the spontaneous changes of blood may develope carbon, in such a form, that it will not unite with oxygen at common temperatures.

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* Thomson's System of Chemistry, 1818, Philadelphia, Vol. IV. p. 473.

† Idem.

‡ Ellis's inquiry into the changes induced on air by germination, vegetation, and respiration, 1807, p. 184 and 196.

§ On Air, Vol. III. p. 364.

‖ Idem, p. 363.

¶ System, Vol. IV. p. 474.

** Turner's Chemistry, 1828, p. 434.

Physiologists, who are chemists, but not enthusiastically so, will find constant use for their knowledge, without being led astray by it. But to adopt the view least favourable to our opinions, and to grant that under extraordinary circumstances, some secret cause, independent of carbon, may blacken the blood; every sound reasoner will perceive that this will not affect the conclusion, that under ordinary circumstances, venous blood owes its colour to carbon. The introduction of oxygen and nitrogen into the blood is no doubt intended for the more perfect animalization of that fluid; which has been deteriorated in the capillary system. The lymph and the chyle are poured into the venous blood, just before it is sent to the lungs; and a very fair inference is, that this is done, in order that these fluids, and especially the latter, may receive those changes by which one or both are to be converted to fibrin, a substance more advanced in the scale of vitality. The fibrin of the venous blood, too, has plainly degenerated from its arterial state, and lost a portion of its contractility.* Hence we see that the venous fibrin, the lymph, and the chyle, and probably also the other constituents of the blood, require chemical changes, to effect which, the introduction of oxygen and nitrogen, and the escape of carbon are necessary. This view will explain fully the facts ascertained by Dr. Edwards. If the nature of the animal or the food used, or the operation of any other cause, have yielded the blood an excess of carbon, a proportionate quantity of oxygen will be spent on that substance; and if, at the same time, the blood contain hydrogen loosely combined, or some animal matter deficient in oxygen, a portion of that gas will be detained, and the carbonic acid formed will not compensate for the oxygen absorbed, but as the nature of the blood varies with that of the animal, the food, &c. so will the quantity of oxygen lost vary. In like manner, the nitrogen, if the above circumstances have furnished it in greater quantity than the purposes of the system require, will be exhaled from the blood; and we shall show that this exhalation is an instance of exosmose. If, on the contrary, any of the proximate principles of the blood be very deficient in nitrogen, a portion of that gas will be absorbed, and we shall show how this is effected by, and agreeable to, the laws of endosmose. The blood of the veins, when directly exposed to the air, loses carbon, and is reddened, as in the lungs. We have not yet discovered the more intimate changes which occur in its mass. We shall now proceed to notice some experiments on the endosmose and exosmose of gases.

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* Broussais's Physiology, 1826, p. 261.

It results from the experiments of Mr. Graham already stated, and from several of our own, that when two gases are separated by a membrane. *both of them pass through the partition;* but as one of these motions predominates over the other, the result is endosmose or exosmose. The membrane, (if we may so call it,) used in most of the following experiments, was the crop of the common domestic fowl. We have obtained similar results from portions of bladder.

July 21*st.* 2 o'clock, P. M. thermometer 88° Fahrenheit. A membrane filled moderately with nitrogen,* was placed in a receiver of hydrogen over water. The membrane was suspended from a copper wire rested between it and the side of the receiver, and was so nearly in contact with the wire, that its slightest expansion or contraction could be detected. In twenty hours, (therm. 82°) there had occurred a considerable endosmose.

July 23*d.* 12 o'clock, therm. 88. The above experiment was reversed. In twenty hours, (therm. 82°,) there was a very considerable exosmose, the membrane being quite flaccid.

July 25*th.* 12 o'clock at night, therm. 84°. A membrane moderately full of common air, was placed in carbonic acid. In half an hour the membrane was fully dilated, and on examination in eight hours, (therm. 84°,) was found to have burst.†

July 26*th.* 8 o'clock, A. M. therm. 82°. The last experiment being reversed, the effect also was reversed; exosmose occurring.

July 27*th.* 12 o'clock, thermometer varying very little from its previous state. A membrane of hydrogen being introduced into carbonic acid, expanded sensibly in a few minutes, and in two hours the endosmose was found to have burst it.

August 21*st.* 11 o'clock, A. M. therm. 83°. A ridge of sealing-wax having been previously fixed on the outside, and near the wide part of a glass funnel capable of containing two ounces of air by measure, a piece of bladder was tightly tied over the wide part of the funnel, thus forming a membranous septum between any gas in the

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* The nitrogen used in our experiments was obtained by the slow action of phosphorus on common air, and therefore contained a little phosphorus. This, however, we separated, by the cautious addition of a minute quantity of chlorine. The hydrogen was obtained from weak sulphuric acid and iron.

† Oxygen and nitrogen separately give the same result; and the endosmose would probably as above, burst the membrane in some hours.

half an ounce of red serum escaped through the coats of the bladder. But that this was not the source of the carbonic acid, is shown by the small quantity of the serum, and by the fact, that the formation of carbonate of lime was considerable before the escape of serum commenced. My experiment was partially performed by Dr. Priestley, who found that blood contained in a bladder was rapidly reddened, wherever it touched the bladder,* and that the layer so reddened, was about as thick as if the contact with air had been immediate. He did not, however, attempt to ascertain the escape of carbonic acid from the bladder. Professor GORHAM states, that both the reddening of blood, and the escape of carbonic acid, have been found to occur, through animal membrane,† as in our own experiment. As, however, he refers to no authority, we concluded to repeat the process as above detailed.

Having now stated those facts which most immediately influence the subject before us, we shall proceed to apply them to the explanation of some vital phenomena. It will, from the experiment of July 26th, and the corresponding note, appear, that when carbonic acid is separated from common air, or oxygen, or nitrogen, by a membrane, the acid passes into the air. This corresponds perfectly with the function of respiration, in which the blood being on one side of the membrane, and air on the other, the carbonic acid passes into the air. There is no power, we think, but exosmose, which can produce this effect, for though *gaseous fluids* do, under the influence of pressure, *very slowly* escape from membranes, yet it is plain, at the first glance, that when a gas has, like the carbonic acid of the blood, lost its elasticity by becoming liquid, it has no longer this power. It also appears, not only that no known vital power can produce the phenomena, but that they occur in dead membranes, and therefore removed from the influence of vitality. We are hence forced to examine the laws of inanimate nature, for a clue to this secret, and we find it fully revealed in our experiments of July 26th, and August 18th.

In conformity with the existence of a double current, we might expect a tendency in both the oxygen and nitrogen of the atmosphere, to enter the blood.‡ Accordingly, as we have already shown, both of these gases do often, if not always, enter the circulation. The reader may recur to our quotation from Dr. Edwards. It is easy to see what circumstance limits the introduction of these gases into the blood. As there is no room in the pulmonary capillaries for gaseous matter, the oxygen and nitrogen will assume the liquid form, in entering the circulation,* and no more can enter than the blood can chemically unite with. Hence, if the blood contain oxygen enough for the purposes of the system, the carbonic acid evolved will compensate for the oxygen consumed; while, if the circulating mass be deficient in that principle, the considerable quantity absorbed by endosmose, will not be compensated for by the exosmose of carbonic acid, but a portion of oxygen will be spent upon the tissues and secretions. All this is in exact conformity with facts already stated, and which, we think, can be explained so as to reconcile conflicting authorities, on no other principles than those of endosmose and exosmose. In like manner, if the blood be exactly saturated with nitrogen, so that it can contain no more in a liquid state, it will be impossible for any atmospheric nitrogen to enter the circulation; while, if any of the proximate principles of the blood be deficient in nitrogen, the atmosphere will lose a portion of that substance, as we have shown does actually occur in some cases. We come now to show how, as sometimes happens, there may be an actual exosmose, instead of an absorption, or a neutral state of nitrogen. We have shown, by our experiment of August 21st, that when oxygen and nitrogen are separated by a membrane, both endosmose and exosmose occur; oxygen passing into the nitrogen and nitrogen into the oxygen. Hence, in respiration, as the oxygen of the air is on the outside of the membrane, and blood on the inside, if that blood has been supplied by the function of digestion, with more nitrogen than the system needs, nitrogen will be evolved, and the respired air will receive an addition of that gas. We have found by experiment, that the carbonic acid of the air-cells tends to produce a similar exosmose of nitrogen.† There is no difficulty, then, in explaining why nitrogen is sometimes absorbed, at other times exhaled, and why, in some cases, neither change occurs. This last takes place when the blood has neither excess nor deficiency of nitrogen. Dr. Thomson states, on the authority of Allen and Pepys, that even under ordinary circumstances, if pure oxygen be respired, a considerable exhalation of nitrogen takes place.‡ He adds, that this cannot be accounted for until the composition of nitrogen is discovered. Our own discoveries on exosmose, will save chemists the necessity of prematurely forcing nitrogen into the catalogue of compounds.

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* On Air, Birmingham, MDCCXC. Vol. III. p. 369.

† Elements of Chemical Science, Boston, 1820, Vol. II. p. 448.

‡ We find, by experiment, that this double current does occur in this, as in other cases.

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* This must be the case in extensive emphysema also; since the entrance of gaseous matter would prove fatal.

† An experiment of August 22d, in which nitrogen and carbonic acid being separated by a membrane, a double current occurred.

‡ System, Vol. IV. p. 470.

"When an animal is made to breathe a mixture of 79 hydrogen gas, and 21 oxygen gas, the respiration goes on without any inconvenience; carbonic acid gas is formed as usual, and at the same time a portion of the oxygen disappears, and azote is found in its place."* Without the agency of the powers which we have been considering, it will we think be quite impossible to explain the exhalation of carbonic acid and nitrogen into a mixture of oxygen and hydrogen. No other agent known to the physiologist, the natural philosopher, or the chemist, can clear up the mystery. From the facts which we have ascertained we hope to remove the obscurity altogether. It is evident that the evolution of carbonic acid is merely an exosmose, induced by the oxygen taken into the air-cells, as already explained in elucidating the respiration of common air. It will be seen too, from our experiment of July 27th, that the presence of hydrogen in the air-cells will produce an exosmose of carbonic acid. Our experiment of August 21st shows that the presence of oxygen in the air-cells will produce an exosmose of nitrogen from the blood. It will also be seen from our experiment of July 21st, and the general law immediately preceding it, that the presence of hydrogen in the air-cells, will, in like manner, cause the evolution of nitrogen from the blood. In this manner, the phenomena, otherwise incomprehensible, are rendered intelligible and even simple.

We extract from our paper on malaria, published in the number of this journal, for May 1830, the following observations. *According to Dr. Beddoes, the blood and muscles of animals killed by confinement in this gas, (carburetted hydrogen,) have a red colour, less distinct than that produced by oxygen, but very different from the dark colour exhibited by animals killed by drowning or carbonic acid. There is much obscurity in the reddening of blood by this gas, and there seems to be no error, as Dr. Beddoes speaks very positively of the facts, and mentions some decisive experiments.*

Dr. Thomson states that "carburetted hydrogen gas gives venous blood a fine red colour, a shade darker than oxygen gas does, as was first observed by Dr. Beddoes, and at the same time a small portion of the gas is absorbed."†

From another page of our paper on malaria, we take the following remarks on carburetted hydrogen:—*Perhaps, indeed, its power of*

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* Thomson's System, Vol. IV. p. 470.

† System, Vol. IV. p. 473.

producing internal accumulation of blood, will afford the only possible explanation of its effect of reddening the muscles of animals destroyed by it; for it is evident that the gas itself cannot decarbonize the blood. This, however, is not satisfactory to ourselves, for the venous blood is redder than in cases of death from carbonic acid; and it would thus seem that the gas interrupts those changes in the parenchymatous structure of the organs by which the arterial fluid is carbonized. The subject, we again confess, is involved in much mystery.

The difficulty, which was insurmountable when our paper was written, no longer exists at all, when late discoveries are applied to the investigation of the subject. It will be seen, from the experiment of Mr. Graham, related near the commencement of the present paper, that when carburetted hydrogen is separated by a membrane from carbonic acid, there is a strong and rapid movement of the latter into the former. Hence, when carburetted hydrogen is taken into the air-cells, there must be a decarbonization of the blood; an escape of carbonic acid from that liquid. Our original opinion, then, that this gas *cannot decarbonize the blood*, was incorrect. The reason, we conceive, why the blood is less reddened in this case than by oxygen, is, that the gas inspired, having no oxygen, the blood has no source for the acidification of its excess of carbon. Whatever portion of carbonic acid the blood may contain, will escape, and a portion of uncombined carbon may seize upon any oxygen loosely attached to the blood, and also escape. Hence the blood will be reddened. But as there is a scarcity of oxygen, a portion of carbon will still remain and the reddening will not be perfect.

We would now submit a question to our readers. Does the carbon of the venous blood exist as carbonic acid, or does it form a more complex union, and merely attract the oxygen of the blood *to itself exclusively*, when the disposition, (electrical?) to exosmose is elicited by the contact of air, or other gases, with the pulmonary surface? Iron will not take up the oxygen of water, until a new influence, perhaps electrical, is developed by the addition of sulphuric acid. Are the cases parallel?

Besides the illustrations above given, we have found, in examining a considerable number of works, during the preparation of this paper, many facts, which, otherwise obscure, are fully elucidated by the facts above detailed.

In concluding, we will advert for a moment to the endosmose and exosmose of *liquids*, and suggest to those who are pursuing that subject, the propriety of an attempt to ascertain whether the true communication between the fœtal and maternal vessels of the placenta be not a communication by endosmose and exosmose, and not by the direct communication, the mass of evidence against which is so strong, that in favour of it so limited.

Columbia, S. C. August 23d, 1830.

Art. III. *On the Penetrativeness of Fluids.* By J. K. Mitchell, M. D. Lecturer on Medical Chemistry in the Philadelphia Medical Institute.

In 1829, I read before the Philosophical Society, a short memoir on a new method of forming gum elastic into thin plates, sheets, and bags. In some instances the balloons formed by the process then described, had, when filled with hydrogen gas, the power of ascending to a considerable height in the atmosphere. Those which were confined to the atmosphere of my lecture room, at the Medical Institute, descended again after a period of time, varying from an hour to two days. The cause of the descent, which did not seem of easy explanation, became a subject of investigation.

The gas might have escaped from the balloons at the ligature, or by permeating the dense wall of gum elastic, or by uniting chemically with the internal surface of the latter. To free the gas from the compression to which it is subjected in a balloon, I confined it in a wide-mouthed bottle, over the aperture of which I tied very firmly a thin sheet of the elastic membrane. In a few hours the descent of the cover into the cavity of the bottle gave evidence of a diminution of the contained gas, and finally the cover was burst inwards by the pressure of the atmosphere, so great had been the rarefaction of that which remained in the bottle. On weighing the membranous cover, no gain in weight could be perceived, so that I presumed that the gas had escaped. By repeating the experiment, and covering the bottle with a small bell-glass holding atmospheric air, I found, after a time, in the latter vessel, an explosive mixture, while the contents of the bottle itself were found to be pure or nearly pure hydrogen. Evidence was thus afforded that hydrogen penetrated the membrane not by any *vis a tergo*, for no pressure was applied, but by some inherent power of considerable amount. The facility of permeation appeared also much greater in the hydrogen than in the atmospheric air, which, if it entered at all into the bottle, did not penetrate in any appreciable quantity, when fully one-half of the hydrogen had made its escape.

In the next experiment the arrangement of the gases was altered: common air was enclosed in the bottle, and a bell-glass confined around it an atmosphere of hydrogen. As was expected, the hydrogen entered the bottle rapidly, raised up the tense membrane, formed it into a globe, and finally burst through it, and thus made its escape from the confinement to which it had been spontaneously subjected.

The minuteness of the atom of hydrogen might readily enough account for the greater facility with which it penetrated the membrane, but could not be considered a good reason for the *energy* with which the penetration was accomplished. A gas having a heavy atom was therefore selected for further experiment, and carbonic acid, subjected to the same sort of confinement was found to permeate the membrane with as great power, and very much greater facility. In succession, most of the gases were submitted to the same ordeal, and all of them found, except nitrogen gas, to exercise the same power, but with very different degress of rapidity. The *power* was ascertained by comparison with common air, and the *rate of action* both in that mode and by comparison with each other. The depression or elevation of the membranous cover, clearly indicated the escape or entrance of a gas, and when two active gases were placed one on each side of it, its rise or fall expressed the difference of rate, because each was, at the same moment, in the act of permeation, as proved by many examinations of the contents of the bottle and bell-glass.

Having once ascertained the rate of action of each gas relative to air, a prediction could be made as to their rate in reference to each other. Hence gases which operated on air with nearly equal velocity, affected the *horizontality* of the membrane very little when placed on opposite sides of it. Thus carbonic acid and nitrous oxide act with great facility on common air, and in nearly equal degree; and when placed on opposite sides of the membrane, penetrate it rapidly, but cause a very slow change in its position. The facts here presented warrant the conclusion, that if two gases, equally penetrant *exactly*, could be found, they would under the above described arrangement, mix uniformly, without in the slightest degree altering the state of the membrane.*

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* Subsequently having discovered that olefiant gas and arsenuretted hydrogen, have, with reference to common air, exactly equal rates, they were placed

The greatest possible degree of effect on the membrane arises, when we place on opposite sides of it, the slowest and most speedy penetrator; for instance, nitrogen and sulphuretted hydrogen. In that case the change is immediately visible.

As in all the previous experiments, different gases were placed in comparison, I placed the same gas on both sides, and expected, for the "sufficient reason," no change. The experiment accorded with expectation. The membrane remained stationary.

The circumstances *essential* to the transmission of gases through the membrane, formed an interesting subject of inquiry.

My first attempt was to produce a vacuum, by placing the gas in a bottle, and exhausting by means of the air-pump, the bell-glass which covered it. The gases effected their escape from the bottles thus treated, with a velocity proportional to the rate of permeation already ascertained; sulphuretted hydrogen passed out more rapidly than carbonic acid, and that than hydrogen. Still as *some* air is always found in an exhausted receiver on the finest air-pump, I passed a tube containing carbonic acid into a Torricellian vacuum where it very speedily escaped and caused the descent of the mercury. Even this experiment could not prove perfectly satisfactory, as mercurial vapour occupies the barometric vacuum. A perfectly empty bag carefully closed was placed in carbonic acid and nitrous oxide successively, without undergoing the slightest inflation. If a very small portion of *any kind* of air remained in the bag, inflation followed, provided the bag were exposed to a *different* gas.

By another arrangement I obtained my object more unexceptionably. Having found by inverting a bottle holding confined gas, and thus plunging it into mercury, that no gas escaped, and that consequently mercury could not promote or sustain the permeation of the gas, I reached my object by the following means. Closing a tall cylindrical lamp-glass at *one* end with gum elastic, and filling it with mercury, it was placed, so filled, on the shelf of the mercurial trough, having the end closed by the membrane uppermost. Through this fine film the mercury could be plainly seen in close contact with its under surface, while the deep depression of the membrane showed the power of the column of mercury by which it was drawn down. By leaving it in the air, or by placing over it a bell-glass of any gas, more slowly, but at their settled rates, the gases penetrated the membrane and accumulated in the cylinder, thus permitting the de-

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on opposite sides of a membrane, with the full expectation of sustained horizontality on the part of the membrane; which was confirmed by the result.

scent of the mercury. The process continued long after the mercury had abandoned the surface of the membrane, and the space was occupied by the gas, in, of course, a rarefied state.

It became then evident, that any thing which could remove the gas from the surface of the membrane at which it had arrived by penetration, would continue its transmission. Of course then agents chemically attractive of a particular gas, when placed beneath the membrane would promote its permeation. In fact, lime water and solution of baryta were rapidly carbonated by the transmission of carbonic acid, and sulphuretted hydrogen almost instantly precipitated the lead of the acetate placed in solution on the opposite side of the membrane, which became black on the side of the solution. A neater mode of performing this experiment is the following. Inject by means of a gum elastic bottle and pipe, into a very small bag of gum elastic, stretched until fully transparent, a solution of the substance to be acted on. Carefully tied, washed, and dried, the bag is to be passed up through mercury into a receiver holding the gas, which for solution of baryta should be carbonic acid, and for that of acetate of lead, hydrosulphuric acid. In a few moments, in the former case, a white coat is seen to completely line the internal surface of the bag, and in a few minutes to fall down and accumulate at the bottom of it. In the latter case, the inner coat is dyed indelibly black. In either case if water be alone placed in the bag, it will absorb a considerable quantity of either of these gases, and their presence may be ascertained by the usual tests.

If any suspicion had arisen that the gases escaped or entered by the route of the space included under ligature, it was dissipated by all the experiments mentioned in the last section; inasmuch as in the first experiment, that with the lamp-glass, the gas was seen to stud beautifully the under surface of the membrane, standing on it in minute drops or bubbles mistaken at first for water. In the experiments with baryta and lead in bags, the whole surface was covered, the precipitation taking place *only* there. Especially was it manifest in the last experiment, where the inner surface was stained black, while the solution remained clear and colourless. The gas therefore penetrates through *every part* of the membrane.

Being desirous of ascertaining more accurately the relative facilities of transmission, I solicited the assistance of my friend and pupil, Professor J. K. Finley, to whose patience, skill, and delicate manipulation, I owe much of the certainty of the following experiments.

Having constructed a syphon of glass with one limb three inches long, and the other ten or twelve inches, the open end of the short leg was enlarged and formed into the shape of a funnel, over which finally was firmly tied a piece of thin gum elastic. By inverting this syphon and pouring into its longer limb some clean mercury, a portion of common air was shut up in the short leg, and was in communication with the membrane. Over this end, in the mercurial trough, was placed the vessel containing the gas to be tried, and its velocity of penetration measured by the time occupied in elevating to a given degree the mercurial column in the other limb. Having thus compared the gases with common air, and subsequently by the same instrument, and in bottles, with each other, I was able to arrange the following gases according to their relative facility of transmission, beginning with the most powerful:—ammonia, sulphuretted hydrogen, cyanogen, carbonic acid, nitrous oxide, arsenuretted hydrogen, olefiant gas, hydrogen, oxygen, carbonic oxide, and nitrogen.

Ammonia transmitted in 1 minute as much in volume as sulphuretted hydrogen in 2½ minutes—cyanogen, 3¼—carbonic acid, 5½—nitrous oxide, 6½—arsenuretted hydrogen, 27½—olefiant gas, 28—hydrogen, 37½—oxygen, 1 hour and 53 minutes—carbonic oxide, 2 hours and 40 minutes.

Nitrogen has a rate of penetration so low as to be difficult to ascertain, because there is no gas of a lower rate with which to compare it. Only by causing it to pass through a membrane by means of a column of mercury, is the fact of its transmission known. In that way, the quantity being compared with that of carbonic acid, its rate was found to be about three hours and a quarter.* This experiment, made but once, is not confidently relied on; but the rate of nitrogen is unquestionably less than that of carbonic oxide.

Chlorine immediately altered the texture of the membrane, as did muriatic acid gas, sulphurous acid, nitric oxide, and some others, so that it was impossible to reach, for their rate of penetration, accurate results.

In every case the movement of the gas through the membrane became progressively slower, until it totally ceased; and finally, but more slowly, the mixed gas returned, as indicated by the descent of the column of mercury. The retrogradation ceased only when the two columns came to equilibrium, or failing the possibility of that, when the mercury in the shorter limb had reached the membrane, through which mercury has not been found able to penetrate.

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* A vessel filled with atmospheric air and closed by gum elastic was submerged under water for two weeks, when it was found to contain only nitrogen gas. Possibly this arrangement may furnish a new eudiometer. It offers a new mode of obtaining nitrogen gas.

A phial containing atmospheric air, after being closed by a membrane, was placed in a receiver holding nitrous oxide. In about two weeks only nitrogen was found in the phial. These facts show the mechanically sluggish character of nitrogen *gas*: with its chemical inactivity we have been long acquainted.

Acquainted with the *fact*, and the relative *rate* of the penetrativeness of gases, the *degree of force* became the next subject of inquiry. That it was considerable, could be seen by looking at the stout membrane broken by it.

By greatly increasing the length of the taller limb of an inverted syphon, similar to the one already described, I was able to bring to bear on the common air imprisoned in the shorter limb, a very considerable column of mercury. Up to a pressure of sixty-three inches of mercury, or rather more, equal to more than the power of two atmospheres, the penetrative action was found capable of conveying the gases, the subject of the experiment, into the short leg, through the gum elastic membrane. The entrance of the gas into the short leg, was expressed by the ascent of the long column of mercury in the other, which, as it entered, it was compelled to heave up. At the height of sixty-three inches, the membrane, though supported by cloth, could scarcely sustain the weight, and would not bear any increase of height. Although, therefore, at present, I do not know the limit of this power, I believe it will be found very much greater, because the power of the column which was tried did not, until a leak was sprung, seem to very sensibly affect the rate of entrance.

To the mind of a physician, the repetition of the foregoing experiments, substituting animal membranes for gum elastic would naturally suggest itself. Should animal membranes present the same phenomena, the interest of the investigation would be vastly enhanced, and a very important service done to the cause of "Physiological Medicine." That animal membranes would act in the same manner, was rendered probable by the well-known experiments of PRIESTLEY, who affected by means of oxygen the colour of blood confined in a bladder. It had also been observed by him that a closely tied bladder, containing hydrogen gas is found after a considerable lapse of time, to contain only atmospheric air, and that, in quantity perhaps, equal to the hydrogen lost. Several other facts of the same kind are detailed by him. Finally, in the *Journal of the Royal Institution*, I find the following "Notice of the Singular Inflation of a Bladder. By THOMAS GRAHAM, A. M. F. R. S. E. Lecturer on Chemistry, Glasgow.

"In the course of an investigation of mixed gases through capillary openings, the following singular observation was made.

"A sound bladder with stop-cock, was filled about two-thirds with coal gas, and the stop-cock shut; the bladder was passed up in this flaccid state, into a bell-jar receiver, filled with carbonic acid gas over water. The bladder was thus introduced into an atmosphere of carbonic acid gas. In the course of twelve hours, instead of being in the flaccid state, in which it was left, the bladder was found distended to the utmost, and on the very point of bursting, while most of the carbonic acid gas in the receiver had disappeared. The bladder actually burst in the neck, in withdrawing it from under the receiver. It was found to contain thirty-five parts carbonic acid gas by volume in one hundred. The substance of the bladder was quite fresh to the smell, and appeared to have undergone no change. The carbonic acid gas remaining without in the bell-jar, had acquired a very little coal gas.

"The conclusion is unavoidable, that the close bladder was inflated by the insinuation of carbonic acid gas from without.

"In a second experiment, a bladder containing rather less coal gas, and similarly placed in an atmosphere of carbonic acid gas, being fully inflated in fifteen hours, was found to have acquired forty parts in one hundred of this latter gas, a small portion of coal gas left the bladder as before.

"A close bladder, half-filled with common air, was fully inflated in like manner, in the course of twenty-four hours. The entrance of carbonic acid gas into the bladder, depends, therefore, upon no peculiar property of coal gas. The bladder partially filled with coal gas, did not expand at all in the same jar containing common air or water only.

"M. Dutrochet will probably view, in these experiments, the discovery of *endosmose* acting upon aëriform matter, as he observed it to act upon bodies in the liquid state. Unaware of the speculations of that philosopher, at the time the experiments were made, I fabricated the following theory to account for them, to which I am still disposed to adhere, although it does not involve the new power.

"The jar of carbonic acid gas standing over water, the bladder was moist and we know it to be porous. Between the air in the bladder, and the carbonic acid gas without, there existed CAPILLARY CANALS through the substance of the bladder filled with water. The surface of water at the outer extremity of these canals being exposed to carbonic acid gas, a gas soluble in water, would necessarily absorb it. But the gas in solution, when permeating through a canal, it arrived at the surface of the inner extremity, would *rise* as necessarily into the air in the bladder and expand it. Nothing but the presence of carbonic acid gas within, could prevent the disengagement of that gas. The force by which water is held in minute *capillary tubes*, might retain that liquid in the pores of the bladder, and enable it to act in the transit of the gas, even after the pressure within the bladder had become considerable."

A careful perusal of Mr. Graham's notice, will excite in every one who knows the value of experimental interrogation, an expression of surprise, at the failure, on the part of that intelligent and ingenious chemist to pursue in the only true spirit of science, the investigation of a principle, one of the most striking manifestations of which had thus been placed conspicuously before him. Content with a single additional experiment, he comes, *in the ancient method*, to immediate conjectural explanation, and has thus lost an easy opportunity of making a beautiful, and perhaps extensively useful discovery. Made at an earlier period, his observation was published in the Journal for October, 1829, and has since attracted apparently no scientific attention. Such is usually the fate of the most pregnant facts which are not perceived to bear on some *generality*. This one passed from *my* mind along with all the other isolated phenomena of that number of the journal, and only shone importantly when illuminated by the reflected light of an extensive principle, subsequently developed. These remarks are made, not to throw any discredit on the character of the accomplished gentleman to whom they refer, but to correct the baneful error of ancient dogmatism, which yet weighs so heavily on the cause of nature and truth. It was true that the carbonic acid entered a closed bladder, and that too *with power*, and it was equally true, that oxygen had done the same thing in the experiment of Priestley, and that, in his hands, even common air had penetrated to replace hydrogen in a similar viscus, and yet he ascribed the phenomenon observed by him, to the *capillaries*, and the conducting power of *aqueous canals*.

In what manner the *power* of "rising into the air" was given, and whether it was dependent on the force of water, or some other cause, does not and could not be made to appear from the single fact, as presented by Mr. Graham. A very little practical interrogation, following the *word* just uttered by nature, would have obtained an answer fraught with new and important truth.

But to return to the immediate subject of this essay.—Analogy, the experiments of M. Dutrochet, and the observations of Priestley and Graham, gave me almost the certainty of finding animal membranes performing relatively to the gases the same function which belongs to those formed of the inspissated juice of the *Jatropa elastica*. Accordingly, each gas was subjected to the action of animal membranes, which replaced the gum elastic at the mouth of the short limb of an inverted syphon. Dried bladder, and gold-beater's skin, moistened to cause an approach to a normal state, and sections of various recent tissues, were successively tried, and found to act on the gases in the manner and order in which they were affected by gum elastic. The more *recent* the membrane, the more rapid and extensive the effect produced; and in *living animals* the transmission was very rapid.

Besides the estimates of comparative mov ement made with the syphon, experiments in a different manner were resorted to, to more clearly show the general truth. Thus a piece of the strong intestine of a goose connected with the œsophagus and gizzard, being partially inflated with common air, and firmly tied, was left in an atmosphere of carbonic acid, where *in less than ten minutes* the inflation caused it to burst. On repetition of this experiment and examination before fracture, a very large quantity of carbonic acid gas was discovered to have entered the intestine. Crop, bladder, &c. &c. of recently killed animals produced exactly similar results. Perhaps the following experiment will be esteemed even more satisfactory. Carefully removed from the chest of a snapper, (*Testudo serpentaria.*) its lung was partially inflated with common air, and confined there by a ligature on the tracheal tube. Exposed in this state, to an atmosphere of carbonic acid, or nitrous oxide, it became very soon fully inflated by the gas, to which exposed, as subsequently proved by chemical examination. Less than half an hour of exposure sufficed for the full inflation of the lung, which was removed only when it threatened to burst. Containing a portion of nitrogen, it was left exposed all night to an atmosphere of oxygen, yet scarcely enough entered to signify its presence; in quantity superior to that which is held in atmospheric air. A taper appeared in it somewhat brighter than before its immersion.

In a subsequent experiment, the two lungs of a snapper having been extracted, were inflated respectively, with common air, and carbonic acid gas. So prepared, each lung was surrounded by a bell-glass, containing an atmosphere of the other gas, so that common air surrounded the carbonic acid *et vice versa.* That lung which contained common air, soon burst by the infiltration of carbonic acid, while the other collapsed by its escape.

In concluding the series of experiments, on *the question of fact*, some were made on *living animals.* A quantity of solution of acetate of lead having been thrown into the peritoneal cavity of a young cat, sulphuretted hydrogen was discharged from the pipe of the generating retort, directly into the rectum. In four minutes the poisonous gas killed the animal, giving to it, because of enormously dilated pupils, a very wild aspect. Instantly on its death, which was itself an affair of a moment, the peritoneal coat of the intestines, and the walls of the cavity in contact with them, were found lined with a metallic-looking precipitate, adherent to the surface, and susceptible of removal by nitric acid, moderately diluted. It was the characteristic precipitate of sulphuretted hydrogen when acting on lead. When in another experiment, the abdominal cavity was almost instantly opened, only the intestines and stomach presented the bronzed aspect; the peritoneum of other parts, and the bladder, appeared of their natural colour, thus proving, that the gas had infiltrated, and not passed through any rent or fracture, an event which would have stained the whole of the lining membrane of the cavity, and dyed the bladder. This experiment forcibly reminded us of that where the internal surface of a gum elastic bag holding lead water, was stained black by sulphuretted hydrogen, while the solution continued pellucid.

In another experiment on a cat, a solution of acetate of lead was placed in the thorax, and sulphuretted hydrogen in the abdomen. Almost immediately, on the entrance of the sulphuretted hydrogen into the abdominal cavity, death ensued, with the same dilatation of pupil as before. On inspecting the thoracic side of the diaphragm, which was done as quickly as possible, the tendinous part of it displayed the leaden aspect of the precipitate by sulphuretted hydrogen. Many years ago, in 1823, while engaged in investigating MAGENDIE's theory of venous absorption, I coloured the diaphragm of a living cat blue, by placing a solution of prussiate of potash on one side, and that of sulphate of iron on the other. At that time I supposed the effect to be *vascular*, but the experiments on membranes of gum elastic, afford an explanation which more rationally refers it to *organic molecular infiltration;* for, in such membranes, vessels cannot possibly exist at all; and as animal membranes act in a manner so perfectly accordant with that of the coagulated vegetable juice, it would be judging against evidence, to refer their agency to widely different causes. At the same relative rates, with the same power, and that a great one, they could scarcely act, in obedience to causes so dissimilar as those alluded to.

Every one who has read the beautiful memoir of Dutrochet, on "*L'agent Immediat du Mouvement Vital, &c.*" and who has, as nearly all have, suffered their belief to be swayed by his eloquence of fact, method and style, will on a cursory glance at the experiments detailed in *this* paper, refer them to the "NEW POWER" so ably contended for by the French naturalist. That they depend on the *same power* cannot be reasonably questioned, whether that power be one long known, or recently discovered. In his experiments made exclusively on liquids, and developed with surpassing good fortune and sagacity, he proved the transmission of liquids through animal membranes, and saw them penetrating too *at different rates*, some solutions passing rapidly, some with greater slowness, some in scarcely appreciable quantity, and some never passing at all. Their *force* too, he found to be of estimable amount. In fact, every aspect of the two sets of experiments, tends more and more clearly to induce a reference of them to one and the same cause, whatever that cause may be. Although the facts presented by him demonstrate all this, yet M. Dutrochet did not perceive it, as is evident, from his reference of the phenomena to a source to which, in latter years, the French naturalists and philosophers have been accustomed to look with almost superstitious reverence. Electricity is the great key of scientific explanation; and the theory of Du Fay is relied on, though badly itself sustained, as the *point d'appui*, of almost all other theories. M. Dutrochet has accordingly ascribed the transmissions to that power, and supposed, in the very teeth of some of his most striking facts, that the current was from a less dense to a more dense fluid; or from positive to negative, dependent not on an inherent power of infiltration, and of course for the same membrane always the same, but varied or even inverted at pleasure, by arrangements productive of supposed electrical powers. He says, p. 129.

> "Ces resultats nous font déjà pressentir que l'impulsion qu' éprouvent les liquides dans ces expériences, dépend d'un courant électrique déterminé par le voisinage de deux fluides de densité ou de nature chimique différentes, fluides que sépare imparfaitement une membrane perméable. *Cette membrane ne joue évidemment aucun rôle propre dans cette circonstance; elle ne fait fonction que de moyen de séparation entre les deux fluides* auxquels elle est cependant perméable: *les liquides la traversent, soit dans un sens, soit dans l'autre, au gré de l'action réciproque des deux fluides qui baignent ses parois opposées.*"

As he used water and solutions in water, by which the former became denser, he found, as might be expected, that it infiltrated the tissue more readily than most of its solutions: hence, in such cases, the water penetrated more quickly than they, and the current usually set most rapidly from less dense to more dense. But when he used essentially different liquids, he yet found the water going through at *its high rate*, as we perceived to be the case with sulphuretted hydrogen and ammonia. Water traversed the animal membrane rapidly, to join *alcohol*, which, according to his electrical theory, should not have been the case, as the alcohol is less dense than water. For this and some other exceptions, Dutrochet attempts to account, by reference to influence, derived from *chemical qualities.*

If, however, as in the case of the gases, two *liquids* of different rates of penetrativeness, be placed on opposite sides of an animal membrane, they will in time present the greater accumulation on the side of the less penetrant liquid, *whether more or less dense*, but will finally thoroughly and uniformly mix on both sides, and at length if any pressure exist on either side, yield to that and pass to the other side.

As some substances have no penetrativeness, such as milk or blood, or at least their solid parts, the water placed on the opposite side of the membrane alone moves, and it is only after the decomposition by putrefaction, and consequent formation of a *new fluid having penetrant properties*, that any current sets in the direction opposite to that of the water. To prove this, it is only necessary to show that *alcohol* penetrates gum elastic much more rapidly than *water;* and that therefore when that kind of membrane is interposed between them, the greater current is from alcohol to water and not from water to alcohol.

A hollow glass cylinder, open at both ends, was closed completely by two membranes of gum elastic having been previously perfectly filled with alcohol. It was then sunk in the large pneumatic trough of my laboratory, where it remained one week. At that time it presented a concavity at each end, of decided depth, proving the escape of a considerable quantity of alcohol. On the other hand a similarly prepared vessel filled with water and submerged in alcohol, presented at the end of a week well marked *convexities,* demonstrating the insinuation of alcohol. If it be contended that the nature of the membrane affects and even reverses the electrical state, it may be well said in reply, that there is no analogy for that, and moreover the same membrane acts under the movement of *gases* precisely as an animal membrane. The supposition would invest it with a most Protean character.

In making experiments for the preparation of gum elastic by ether, that liquid was found to readily infiltrate its tissue. Alcohol has been already shown to penetrate it better than water, and water enters its substance so slowly, that a bag of a thinness productive of almost perfect transparency, and containing four ounces, two drachms, fifty-seven grains, lost by evaporation but eight grains in the first period of twenty-four hours, and fifteen grains during the next three days. Viewing these facts, a prediction was founded on them relative to the effect of placing ether in contact with one surface of such a membrane, while alcohol or water, occupied the opposite surface. As was expected, the greater quantity accumulated on the side of the less penetrative substance, and the ether always caused by its transmission an augmentation of liquid on the side of the alcohol or water. Using *animal membranes,* facts of a similar kind, previously ascertained, led us to anticipate the *opposite* result. According to expectation, water being most penetrative, passed through so much more rapidly than ether or alcohol as to swell the amount of liquid on their side.

When alcohol is largely diluted with water, it penetrates an animal membrane more easily itself, and offers to the pure water which reaches it from the opposite side less invitation to infiltrate it, according to a law of *progressive diminution,* pointed out by our experiments on gases. Such a diluted portion of alcohol placed by M. Dutrochet in his endosmometer, and raised above the level of the pure water on its outside, found, in the force of the higher column, sufficient cause for its escape, which continued until the level was reached, when action apparently ceased. If the level be obtained at the commencement of the experiment, either no appreciable change is observed, or the movement is unquestionably in a direction contrary to that stated by Dutrochet. So, when gases are permeating in opposite directions any interposed membrane, the penetration soon begins to lessen, because there is on either side less porosity unoccupied, and there is also in them the repellent character of their gaseous state. M. Dutrochet reconciles these apparently contradictory facts to his system, by supposing chemical influence to produce the first, and electricity the second. In either case he does not appear to dream of independent and original powers of penetration, by which the liquid comes through to the opposite side of the membrane, *remaining* in *its* tissue, or passing on by a similar power of infiltration into new matter, or such matter being absent, accumulating on that side by the influence of mechanical power, or electrical excitement, or chemical combination, truths adequately demonstrated by my experiments on gases.

The blinding effect of preconception on the most philosophic and candid mind, can perhaps have no better exemplification than is afforded by what M. Dutrochet says relative to the point of accumulation, when a *diluted acid* and water were placed on opposite sides of an animal membrane. As alkalies produced towards them a current, for the support of his electrical theory, acids should be found to set the current towards water, and *he found it so.* In my experiments, the greater current was *always* towards the acid and not from it; and I find that Dr. Wedemeyer, (Untersuchungen über der Kreislauf des Bluts,* &c.) has made the experiment with a like result.

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* See this Journal, Vol. V. p. 199.

reference to Dr. TOGNO's experiments, (Amer. Journ. of Med. Sci.) which were chiefly repetitions of those of Dutrochet, we perceive that he does not seem to be satisfied perfectly with the report of Dutrochet on *this* subject. Let any one desirous of testing this matter. tie a piece of animal membrane over the end of a hollow glass cylinder, partially fill it with diluted sulphuric acid, and place it in a vessel of clean water, so as to bring the two columns to a level. In a few hours the column holding the acid, will rise considerably above that of the clean water, proving the greater current to set from water to acid, and not from acid to water. Tests, however, show that *some* acid does pass the membrane.*

To feel *assured* of the error of Dutrochet, I repeated the experiment in another form. A tube of five-sixteenths of an inch in diameter, ending in a funnel-like extremity of an inch and a quarter, was covered at its broad end by animal membrane, then partially filled with diluted acid, and placed, membrane downwards, in clean water, so as to bring both columns to a level. INSTANTLY the rise in the narrow tube was perceptible, and amounted to nearly half an inch in half an hour. Reversing the order by placing the clean water in the tube, and the diluted acid without, as sudden and progressive a descent of the column of clean water was observable. Tests, after a short time, betrayed the percolation of some acid, and finally, in every case the liquid became uniformly acidulous throughout, and the two columns fell to a common level, an event which may always be expected, unless the combination produced by transmission is not penetrant.

Water may be removed from the surface of a membrane at which it has arrived, in many and various methods. Invitation may be given to it by a column of mercury, contained in a hollow cylinder closed above by animal membrane. Water readily passes through, may be seen studding in drops the surface of mercury, gradually covering the under side of the membrane, causing at length the separation and descent of the mercury, and continuing to enter the cylinder, until the mercurial column sinks to the level of the general contents of the trough. There the action ceases, but if the water placed *above* the membrane, be now removed, the mercurial column will again rise, and all the water having escaped through the membrane by the process of infiltration into the atmosphere, the mercury will be finally seen in close contact with the membrane from which it had receded. Sometimes before the completion of the process, a change takes place in the condition of the animal matter, and some gas being introduced below, suspends the ascent of the mercury.*

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* This fact I demonstrated to Dr. Togno.

A sponge *slightly* moistened, or dry oat meal, or any other absorbent, placed by means of a moderate weight, closely in contact with the membrane, will, by absorbing the water, cause its continued permeation.

Even *vis a tergo*, as in the instance of the gases, will produce infiltration where there exists no other cause of penetration. Over the end of the short limb of an inverted syphon was tied a piece of bladder, and over that, and *in close contact with it*, was also secured a piece of sheet caoutchouc. Water was then placed in the short limb, in communication with the bladder, and thus left for a few hours without compression. No appreciable amount of infiltration ensued. But, in a short time after a column of mercury had been placed in the long limb, water was plainly seen to insinuate itself through the bladder, and to raise up and separate from it the more elastic membrane which surmounted it. After all the water had passed into the space between the two membranes, the syphon was placed in its ordinary position, the end of the long limb resting in the mercury of the trough. Soon, the water repassed the bladder, ascended through the short column of mercury lying above it, and collected in the curve which then formed the pinnacle of the apparatus.

Another fact, in itself important, bears forcibly against the electrical theory of Dutrochet. To try the absorbent power of the dermoid tissue, pieces of it in a recent state, were tied, cuticle outwards, over bottles which contained common air or carbonic acid gas. Over the bottle which held carbonic acid, was inverted a jar of common air, and over that holding air was placed a jar of carbonic acid. The more penetrating gas was in the one case in contact with the cuticle, and in the other with the dissected under surface of the skin. A trial of the contents, after twenty-four hours, showed that much more carbonic acid had penetrated in that apparatus where it was applied to the cuticle, than in the other. As in that case it had gone from the jar into the bottle of common air, while in the other case very little carbonic acid gas had escaped from its receptacle, I filled it again, and tied over it a piece of skin with its cuticle looking inwards. In twenty-four hours the carbonic acid was equally diffused through both bottle and jar. Two similar sections of intestine were slightly inflated with common air, one of them being turned inside out. Both having been carefully tied at the ends, were placed in identically the same carbonic acid, in vessels of equal size. It was soon apparent that the one which had been inverted, filled itself most rapidly, and although rather less than the other, soon greatly exceeded it in size and hardness. After remaining so exposed for eighteen hours, vessels of common air were placed over the distended bags, when a diminution of volume became in time apparent, and was more rapid considerably in the specimen which had not been inverted. It appears then, that the transmission of a gas is easiest where it is placed on the cuticular or mucous surface of an animal membrane, rather than on its cellular or peritoneal surface, a fact to be kept in view in rating the transmissibility of the different gases or liquids. The fluids should be compared under exactly similar circumstances, standing in the same relation to the surfaces of the membrane used.

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* A new hygrometer was suggested by this experiment, of which I purpose giving an account to the Philosophical Society.

In the following experiment, made with great precaution, we perceive a result distinctly indicative of the superior penetrability of the cuticular surface. Over the mouths of two phials, accurately filled with alcohol, weighing according to a *Pese-Ether*, thirty-five and a quarter, were tied two pieces of human skin. In one the raw side presented, in the other the cuticular side. Both were placed mouth downwards in similar specimens of water, with columns of equal altitude. After the lapse of twenty-four hours, the alcohol was examined, and found to weigh more, by at least one degree, in the phial which presented the cuticle to the water. In it the etherometer sunk to thirty-three and a half, while in that which presented the dissected surface to the water it fell only to thirty-four and a half. The one had been reduced by the water one degree and three-fourths, and the other only three-fourths of a degree.

In all these cutaneous experiments, we perceive not only the agency of the membrane itself, but even that of its respective surfaces, so that we are not at liberty to admit the assertion respecting the action of the liquids, as independent of the influence of the intervening membrane.

In truth it is now manifest that the liquid, if penetrative, permeates a given tissue at a rate dependent on the character of tissue and power of penetration. If on the opposite side there exist a substance or power capable of occupying or removing it as fast as, or faster than the membrane delivers it, the actual rate of transmission will be as high as is possible; but if not so capable the accumulation will be at a lesser rate, and will represent the degree of permeability of the inviting substance alone. Thus, for illustration, if ether can convey away water as fast as, or faster than, the membrane can transmit it, the rate of penetration will be the greatest possible, and will represent the full penetrability of that membrane by water. But if ether is less penetrable than membrane, the rate of accumulation will not represent the power of the animal tissue, but that of the ethereal interstices, which, on the supposition, is less.

The *power* of this process in liquids, like that of the gases, is not *yet* measured. It is the *power of infiltration* in all such cases, and must be eminently great. Like all processes having dependence on molecular action, this one is influenced by electricity, when that is brought to bear on it, but we can scarcely, after a fair estimate of the value of facts, see any thing more in the power than that of common interstitial infiltration, a power marvellously great, but insusceptible of demonstrative reference at present to any known cause.

The amount of force having been shown to greatly exceed that of atmospheric pressure, we feel assured that the interstices are penetrated not by any *vis a tergo*. It must therefore be attributed to some species of *attraction*, the force of which, as shown by the condensation of some gases by charcoal, sometimes equals a power of forty atmospheres, or nearly six hundred pounds on the square inch, a power amounting nearly to that of steam, *at its maximum density.*[*] It is not chemical, because the quantity absorbed bears no relation to known affinities; it is not homogeneous attraction, for it takes place *solely* among dissimilar substances, and often subverts the condition produced by that power as in some cases of solution.

After having proceeded thus far with my argument and experiments, I felt as if it were important, if not essential to my positions, to test the power of gum elastic as an absorber of gases independently of the artificial arrangements which brought different gases to the opposite sides of it. For that purpose I selected a hollow cylinder of gum elastic, with thick parietes about an inch in length. This specimen was placed in a cylindrical graduated test-glass, filled with carbonic acid gas and placed over mercury. In less than one minute the mercury began to rise, and in eight hours, during which the observer was absent, it had risen to a considerable height. A rough attempt to measure the bulk of mercury raised, and of gum elastic used, showed that nearly an equal volume of carbonic acid had been absorbed by the caoutchouc. A piece of dry bladder was subjected to the same treatment, and produced a similar rise of the column of mercury. Macerated in water for an hour, and then wiped well with a dry towel, so as to obtain dry surfaces, the same piece of bladder was again placed in the gas over mercury, and produced a diminution apparently equal in quantity to that which, when dry, it occasioned.

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[*] Found by comparing the experiments of Cagnard de la Tour with those of the Committee of the Institute of France.

The bulk of the gum elastic was considerably increased by the infiltration, so that although easily placed in the glass vessel, it was of difficult removal. This fact, added to that of the thorough penetration by water of an animal membrane macerated in it, shows how much of the phenomena described in this paper is attributable to the organic molecular infiltration. The remainder of the effect is dependant on the moleculo-porous relation of the gas or liquid to the substance beyond, into which infiltration carries the permeating substance. If the recipient beyond the membrane be as active as the membrane, or more so, all that the membrane brings to its surface will be transmitted as fast as it arrives: but if that recipient be of inferior penetrability, less will pass on than the membrane could carry through, and in that case the rate of penetrativeness of the substance relative to the membrane is inappreciable. Any gas penetrates another gas better than it does any solid, hence we obtain for *them* the true rate. But liquids penetrate each other sometimes less rapidly than at the rate of the transmission through the membrane. Such cases do not show the rate of transmissibility by the membrane, but of reception beyond.

Having completed the *first* series of experiments on molecular infiltration, before entering upon an account of the second, reserved for the next number of the Journal, it may be refreshing both to experimenter and reader, in a very toilsome investigation, to pass in cursory review, some of the almost infinite theoretic and practical suggestions, which flow from the facts before us.

The most striking generality, is that of the *high power* of penetrativeness of *gases* for *organic molecular tissue*, long known to be infiltrable by liquids, but until now, not generally known to admit of any permeation, by at least, *insoluble* aëriform substances.

Secondly. We are struck with an unexpected result, the *great* POWER of gases to infiltrate *each other*. It has been long known, that aëriform substances confined in the same apartment, finally mingle uniformly, and that, even if the lighter one be placed above the other. To account for this, and some other facts of the same class, Mr. DALTON supposed that each gas, in reference to the vertical relation of its particles, stood in an attitude of independence of any other gas present, as much as if no such gas were confined along with it, no particle of one gas being supposed to rest on any particle of the other, the interstitial cavities of one gas being in fact a *vacuum* for the reception of the molecules of the other, each for each.

The *power*, however, of this infiltration being known, we are entitled to conclude, that the interspaces of gases are reciprocally occupied with a force similar, and probably equal to that which causes the imbibition of liquids by solids, and produces solutions of substances, even of the highest cohesive attraction. Solutions may now be esteemed infiltrations by solids and liquids of the tissues of each other, *requiring*, perhaps, only a *fitness in size*, rather than a chemical or cohesive attraction, for we see it subverting even the greatest cohesive power, and holding no apparent relation with known chemical affinities.

The atmosphere cannot any longer be considered as a mixture in the common acceptation of the term. Its gases penetrate each other interstitially with great mechanical force, so great as to defy all mere mechanical means of separation. It is an exemplification of solution.

When the particles of a solid separate and enter the tissue of a liquid, it is termed solution, when the liquid penetrates the solid, and the latter maintains its solidness, it is usually called infiltration, imbibition, absorption, &c. &c. The processes are perfectly alike in principle, the different names being expressive of that, and of certain accompaniments or effects also.

By means of our second generality, we are enabled satisfactorily to explain many phenomena not heretofore easily accounted for. Thus we understand how a gas or odour flows so rapidly through the whole tissue of a still atmosphere, and why some gases do so more speedily than others. An explanation is also given of the diffusion of odours, even against a draught, or current, and it accounts for this fact, among others, that brimstone thrown into the fire, is perceived by the olfactories, when the draught of the chimney is even perfect.

As proved in some experiments, already detailed, many solids are dependent on water for the power of penetrating tissues, or gases, &c. and it appears probable that many odorous solids, in particular, enter the atmosphere, solely by penetrating its hygrometric constituent. Thus, in solution, colouring matters readily in certain cases, pass through membranes impenetrable without such aid, and every one has perceived the singular smell of a dusty road, after a shower, even at a very considerable distance. In a damp day, or immediately after rain, we more distinctly and vividly enjoy the fragrance of the parterre. Malaria seems to be dependent on the same cause for its penetration into the atmosphere, for every one knows the greater hazard of a residence in low damp situations, and the general unhealthiness of a damp summer, or autumn. As electricity is a great hydragogue, and substances in a negative state forcibly attract moisture, we might expect to find that season most damp and unwholesome in which the atmosphere maintained an electro-negative condition, and that driest and most healthful when it was electro-positive. Facts on this subject are yet to be created: but this one presents an aspect german to the subject. Mr. William Mason, of Philadelphia, a philosophical instrument maker, respected both for his ingenuity and correct moral character, informed me, that when, in 1820, the yellow fever existed here as an epidemic, he could not excite an electrical machine at his residence, in the infected district, although at his shop, which lay at some distance from it, the operation of the machine was sufficiently powerful.[*]

There exists between the lower surface of air, and the upper surface of water, a space possessed of powers analogous to those of the interspaces of substances in general. Along this plane, certain substances dart with surprising facility, losing as their particles separate, all cohesion, and acting repulsively. The oils are remarkable in this regard, and camphor exhibits, because of it, curious and agreeable movements, when thrown upon perfectly clean water.[†]

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[*] Aqueous gas penetrates the air more or less rapidly according to the temperature and moisture of the atmosphere. According to our law of *progressive diminution*, evaporation is slower in a moister atmosphere and *vice versa*. The following experiment shows that aqueous gas has also *its rate* of penetration. A long tube, surmounted by bladder, held water and mercury; the former of which being above, was in contact with the membrane. Although the mercury rose gradually as water escaped, yet some air found its way through the bladder, and occupying the upper part of the tube, separated the liquid and bladder from each other. Under such circumstances only, air and aqueous gas could reach its lower surface. Notwithstanding this, and the gradual increase of the quantity of air, the mercurial column continued to rise, showing that the rate of the penetration of aqueous gas, is greater than that of atmospheric air, by which it could not be counterbalanced. Curious to see the effect, I tied over the summit of the tube, a bag, holding carbonic acid, which thus replaced the atmosphere. Almost immediately, the mercury gave intimation of descent, by losing its convex summit. It did fall, and carbonic acid entered through the membrane, faster than the moisture had at any time escaped.

[†] The best mode of examining this property of camphor is the following:—Take a piece of cork, a flat four-sided prism, and attach to its narrow sides, close to the ends, and diagonally opposite to each other, two small pieces of

But it is chiefly with reference to physiology, pathology, and practical medicine, that we see in the foregoing experiments, things of much real value. They throw a particular light on the functions of respiration and cuticular absorption, and will probably lead to the employment of gaseous agents of cure with confidence and certainty.

The experiments on the mutual action of gases and liquids, show that although a gas may, when *alone* presented to a liquid, for which it has no chemical affinity, penetrate its molecular cavities, yet, it will again leave it to join any gas whatever, which is brought into communication with the liquid. Thus carbonic acid or nitrous oxide readily penetrates blood or water, but returns from either into the air or any other gaseous substance, which contains no carbonic acid, or nitrous oxide. It is in this way, probably, that the oxygen disappears, and an exactly equal quantity of carbonic acid replaces it in the bronchial cells. Oxygen penetrates slowly the membranous tissue, to infiltrate and brighten the blood: carbonic acid is immediately formed, and being a gas differing from the remainder of the air yet in the air-cells, its tendency is to return, to penetrate that air, and thus escapes through the trachea along with it. The oxygen enters, because there is oxygen enough behind to permit that, and it is also an observed fact. The carbonic acid formed, makes its escape, because invited by the molecular tissue of atmospheric air. Keeping up any reference to known facts, we can scarcely doubt the truth of our explanation, or venture to adopt any other. The investigations of John Davy, and our careful repetition of his experiments, with others, fully as conclusive, leave no doubt of the entire absence of carbonic acid in the blood.*

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camphor. Resting with its broad surface upon a considerable plane of *quite clean water*, the apparatus will regularly rotate, and that either until the camphor is consumed, or the interspace is filled with that substance, or an emanation from it. Oil, by filling the space, immediately suspends the motion. If a cork be greased slightly, or camphorated at the end, it will move in a direction from that end, and with considerable velocity. The same thing happens when fine dry flour is attached, or when the but end of the cork is dipped into ether or alcohol. A cavity being made in the upper surface of a floating cork, near the end, filled with ether, and connected by a cotton filament with the water, it will sail about a pneumatic trough for a considerable time, always moving towards the solid end. A little rudder being attached to the cork, and slightly inflected, the vessel may be made to sail entirely round a circular tub.

[*] Having filled a phial with hydrogen gas, blood was received into it from a vein, so as to exclude the agency of oxygen. When completely full of blood, the phial was closed by sheet gum elastic, and immediately subjected to the

It must, therefore, be produced in one of two modes, either by the penetration of oxygen into the blood, and its union there with carbon, or the exit of carbon from the blood, to unite with oxygen in the air-cells. Now, as carbon is one of the most fixed substances in nature, and has not been proved capable of such transmission, we are, if *facts* be our guide, compelled to adopt the other theory, which is perfectly in accordance with the laws of gaseous infiltration If it be asked how the carbonic acid is formed in the blood, at so low a temperature, we reply, that carbonic acid is actually created *at a lower temperature*, by the agency of infiltration, when oxygen gas is imbibed by a piece of fresh cold charcoal. The difference in the rate of permeation, is quite sufficient to account for the escape of all the carbonic acid formed by the infiltrated oxygen.

Our theory does not account for the production of animal heat, but it is presumed that no well-informed physiologist now seeks for it in the action of the lungs, or the process of decarbonization. The simple fact, that cold-blooded animals breathe without *any* increase of temperature, proves that mere breathing to *any amount* will not produce heat. Like all the other animal functions, that productive of heat is dependent on a normal condition of blood, and is thus *indirectly* governed by the act of respiration. As in cold-blooded animals, there is no apparatus for producing heat, respiration does not in any way influence *their* temperature. So in some of the cases quoted by JOHN HUNTER, where blue-boys maintained a temperature preternaturally great, the blood was very imperfectly decarbonized. In such cases the calorific function found some novel stimulant.

Our experiments afford ready explanations of the effect of the various gases when respired. Carbonic acid not only cuts off the necessary supply of oxygen, but also penetrates into the blood, and passes through the route of the circulation.

We perceive why nitrous oxide, so identical with oxygen in all its chemical habitudes, should act so differently on the human system. It penetrates at least sixteen times as rapidly, and probably acts then solely as oxygen would do. Hence we see why it does not exhaust us; for it not only acts upon excitability, but creates a fresh supply of it, so that its consumption is not felt. We can also easily see why an animal was destroyed in ten minutes by breathing hydro-

action of the air-pump. Under such circumstances, no gas of any kind could be immediately separated from the blood: but after coagulation was completed, a bubble of air, about the size of a pin's head, was perceived beneath the membrane, and that that was atmospheric air, or nitrogen, was proved by its long continuance there, without apparent diminution or escape.

gen, while carbonic acid produced the same effect in two minutes. In Section I. Article IX. of his Physiological Researches, BICHAT relates some curious exemplifications of the passage of gases into the blood-vessels through the lungs of living animals. For instance, hydrogen gas could be set on fire, as in bubbles it escaped from a remotely situated *blood-vessel.* As he had used some force by means of a stop-cock and syringe adapted to the trachea, to throw in, and retain the gas, he ascribes its entrance to that cause. We see however that though impulsion augments the effect, yet that it is existent independently of any *vis a tergo.* Gases not *at all* soluble in blood, will not pass without force, but that force is, in some degree, applied in every act of expiration. Those soluble in blood, find ready entrance when not held back by the interstitial molecular power of the other gases with which they enter the bronchiæ.

The emptiness of the blood-vessels after death, or rather their fulness of gaseous matter, is no longer a case of difficult solution. Always present in the air-cells after death, air and carbonic acid gas must find a ready entrance into the emptied capillaries of the lungs, always prompt to dilate through the influence of the elastic matter which exists in and around them in the lungs. As any kind of air acts as a stimulant to the heart's cavities, a gaseous circulation is kept up, and the aeriform matter passes into the great channels of circulation.

It does not appear difficult to understand why so penetrating and poisonous a gas as sulphuretted hydrogen should often exist in the intestines without injury; for, being mixed up with other gases, its tendency to infiltration is greatly restrained. When undiluted, its diffusion through the whole system is fearfully rapid.

"Of all the gases," says Dr. URE, "sulphuretted hydrogen is the most deleterious to animal life. A greenfinch plunged into air which contains only $\frac{1}{1500}$ of its volume, perishes instantly. A dog of mid-

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[*] In 1823 being engaged in dissecting a sturgeon, (*Acipenser brevirostrum?*) its heart was taken out and laid on the ground, and after a time, having ceased to beat, was inflated by mouth for the purpose of drying it. Hung up in this state it began again to move, and continued for ten hours to pulsate regularly, though more and more slowly. Left at 1 A. M. in slow motion, it was found next morning still and hard. When last observed in motion, the auricles had become so dry as to rustle as they contracted and dilated.

With the heart of a *Testudo serpentaria,* (Snapper,) I lately repeated the experiment, and found it beat well under the influence of oxygen, hydrogen, carbonic acid, and nitrogen, successively thrown into it. Water also stimulated it perhaps more strongly, but made its substance look pale and hydropic, and in *one minute* destroyed action beyond all known means of restoration.

dle size is destroyed in air that contains $\frac{1}{800}$, and a horse would fall a victim to an atmosphere containing $\frac{1}{250}$.

"Dr. CHAUSSIER proves, that to kill an animal it is sufficient to make the sulphuretted hydrogen gas act on the surface of its body, *when it is absorbed by the inhalents.*"

One of the objections to the belief in aërial poisons most confidently urged by *antimiasmatists*, is the absence of all proof of absorption of gaseous matter, and indeed this was the sole difficulty of any real moment in the way of the triumphant establishment of the theory of miasm. Will it now be going too far to say, that this difficulty is removed, and that we can explain why miasmata affect persons so differently who reside in different apartments of the same house, or who lived on opposite sides of the same street. Although being a very little nearer to the source or to the ground may not appear important, yet the difference of a few yards makes in either case a momentous distinction. Very near to its source a gaseous substance occupies a larger portion of the atmospheric space, and presents not only more matter, but matter less restrained by the molecular power of the air with which it is mingled. Not only is a greater quantity presented, but it is withheld from admission into the tissues by a slighter restraint.

As pressure unquestionably affects the rate of gaseous infiltration, *a difference in the amount of atmospheric pressure* will perhaps be considered of some importance, and *assist* in accounting for the general unhealthiness of low situations, and intertropical latitudes.

Spontaneous evaporation has been long a subject of interest to the philosopher, and has not hitherto admitted of adequate explanation. Now we perceive, that in elevating moisture into the atmosphere, a very powerful agent is at work, one capable of subverting the cohesion even of solids, and of producing the continued infiltration of the atmosphere. Heat being also capable of destroying the attraction of aggregation, augments evaporation and interstitial infiltration. On this, (I speak it hesitatingly,) depends the power of steam. Caloric penetrates gases as they do each other, and escapes from them in exactly the same manner when substances which contain less of it invite its penetrant power in a new direction. Thus, for illustration, carbonic acid penetrates common air, and, so far as we know, will expand it, if constantly supplied, to an amount of power not yet measured. But so soon as another gas or penetrable substance is presented, it begins to withdraw from the air and to penetrate that. The hollow intestine used in one of our experiments was powerfully inflated by its entrance, and yet as rapidly collapsed when the gas was invited outwards by the presence of another gas on its exterior. The resemblance of phenomena does not end here. Each penetrates different substances with different degrees of facility, and the *quality of the surface* is often to both as influential as the character of the substance which affords it. The *fact*, the *force*, the *enlargement of bulk*, the *penetrativeness varying usually with the substance and surface to be acted on, being however uniform relative to all gases*, the *constantly diminishing rate of progression*, the *issuing out again when invited by new substances, or a vacuum, or when mechanical compression is applied*, all afford evidence of analogy as perfect as is perhaps ever offered to the view of philosophy.

We are struck with its resemblance *to water* in one respect. Highly concentrated caloric invites the penetration of all liquids, and perhaps of all solids, and thus, while held in solution by it, they obtain a penetrativeness themselves which does not naturally belong to them, and are elevated into the atmosphere in spite of specific gravity however high, or of atomic weight however considerable. Some facts not yet sufficiently studied, lead me to the perhaps hasty conjecture, that even the *decomposing* influence of caloric is owing to this power. Water exercises it in that way in some cases, such as that of acetate of lead.

The great length to which my remarks have unexpectedly extended, and the call of the printer, prevent me from going fully into the consideration of the connexion of our experiments with pathology and therapeutics. Their bearing on these departments of medical science will furnish subject matter for a future essay. In the mean time, we feel entitled to believe that we better comprehend some of the phenomena of colic, tympanitis, and emphysema, and see more clearly the cause of the value of certain methods of cure.

Bichat was among the first to produce the passage of air of various kinds into the blood-vessels and cellular tissue of the lungs, by forcing it into the air-cells and there confining it. Even when the blood-vessels were full of froth, and emphysema became extensive, he could perceive not the slightest laceration of the bronchiæ. When the impulsion was moderate, the air passed only into the blood-vessels; when more violent, its presence became manifest in the cellular tissue. In certain cases referred to by authors, violent exertion, laborious respiration, and severe flatulency of the intestines, have forced air into the blood-vessels and cellular tissue. Colic has produced also tympanitis, and few practiced physicians are ignorant of the fact, that great gaseous distention of the abdomen has disappeared without the *apparent* escape of any wind. When we consider attentively the laws by which are regulated the entrance and exit of gases under the action of their penetrativeness, we feel scarcely at a loss to understand these phenomena.

The prodigious accumulation of gas in the stomach and bowels, in hysteria and epilepsy, may be explained, by supposing the air, which exists by infiltration in every part of the animal economy, to be forced by the violent compression of spasmodic action into the hollow viscera, where already existent gases invite its entrance. In some experiments on the effect of certain gases on living cavities, made by my ingenious friend Dr. Finley, their escape was so rapid as to create surprize.*

The establishment of the fact of the penetration of liquids, each according to its peculiar rate, and the modifications of that rate dependent on extrinsic force, such as impulsion or invitation, electricity, &c. teach us many valuable lessons both in philosophy and medicine. Especially I would invite attention to the cause of the remedial influence of *pressure*, as auxiliary to other means of cure.

Recapitulation.—1st. Substances formed of organic matter are generally penetrable by gases of all kinds, and by several, if not by all liquids.

2d. Each animal or vegetable tissue is differently penetrable as to time by different fluids.

3d. But all fluids penetrate any particular substance at rates susceptible of being ascertained. The gases retain the relation observed by reference to one substance in all other cases. Whatever may be the greater or less penetrability of any given tissue, the gases penetrate it, relatively to each other, according to the ratio observed in experiments on other tissues.

4th. The *ratio* is not so uniform in the instance of denser fluids. Liquids, though rateable with regard to permeation of any given substance, do not act similarly on different organic substances. Thus water penetrates most, if not all animal tissues, better than any other liquid whatever, and consequently passes through them to accumulate in *any of its own solutions*, and in alcohol or ether: while these two latter substances penetrate gum elastic with more facility than either water or its solutions. Therefore, with regard to gases, the *ratio* of penetration depends on them alone, while, in the case of liquids, it depends on the joint agency of both liquids and tissues.

5th. When the quantity of the fluids is limited, there is a gradually diminished rate of progression as the infiltration proceeds. It is proportional to the state of dilution, and ceases when the substances have become, on both sides of the membrane, of uniform condition, unless some extrinsic power is then operative.

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* North Amer. Med. and Surg. Journ. No. VI. 1827.

6th. The power of the penetrativeness is very considerable, being *certainly* superior to that of two, and *possibly* equal to more than that of forty atmospheres.

7th. Penetrativeness acts not only on organic tissues, but also on gases and liquids, and with apparently equal power on all. For, after permeating a membrane, the gas or liquid goes on into the molecular tissue of the gas or liquid beyond, and no pressure which the membrane can bear, acts as a restraint on the progression.

8th. Although of such high mechanical power, the penetration can be, to a certain degree, affected by extrinsic agency. Thus pressure or attraction will cause permeation, where it would not otherwise take place, as when a single gas or liquid travels not only through, but beyond a membrane, where there exists nothing to imbibe it, which it would not do, unless subjected to propulsion. Electricity, possessed of hydragogue powers, acts on water in a similar manner, causing it to collect on either side of an animal membrane, at pleasure, although no other liquid is there to receive it.

9th. The penetrativeness of gases for each other seems to vary in velocity, but not in force.

10th. Reference to the above-mentioned laws and modifying agencies enable us to explain many phenomena hitherto imperfectly understood. We, by means of them, comprehend the uniform constitution of mixed gases in any vessel, or in the atmosphere, notwithstanding the greatest difference in specific gravity. It explains the diffusion of odours, the nature and power of spontaneous evaporation, and the probable nature and progression of caloric under slow conduction. It affords us new views of the theory of respiration, and accounts, in that process, for some well ascertained facts, for which there previously existed no adequate explanation.

It shows us how emphysema and tympanitis may happen without secretion of gases, or lesion of tissue, and how a spontaneous cure may be produced. It leads to the probability of the existence of gaseous matter of very various kinds, in almost every part of the animal frame, resident there molecularly, and not *en masse*, but susceptible of being collected into mass in the great cavities or the cells of the tissue, or the blood-vessels, by mechanical or electrical influence, or the attractive interstitial agency of other masses of air.

It teaches the important truth, that water is the great general infiltrator and diluent, a knowledge of whose habitudes will be thus rendered both clearer and more useful.

Before closing my remarks, I am happy to be enabled to say, that a considerable number of my medical friends visited my laboratory, and saw for themselves the verifications of my statements. I solicited their observation both for the confirmation of my own impressions, and for the greater readiness of reception which the public always affords to facts which have appeared in a similar light to several different individuals of adequate judgment.

In my next I hope to present a table of the rates of penetrativeness of liquids for animal membranes. I hope also to ascertain the amount of force. On the relation of the respirable gases to the blood, and other liquids, I possess already many interesting facts, which will be then promulged.

Philadelphia, September 15th, 1830.

Since the foregoing paper was sent to the editor of this Journal, I have had an opportunity of reading M. Dutrochet's short essay, entitled "*Nouvelles Recherches, &c.*" In it, I find that the author has discovered his mistake, relative to the action of acids in general, but has fallen into one quite as important, respecting the agency of diluted sulphuric acid. He *now* considers it a *nullifier* of endosmose, instead of a promoter of exosmose, being not only itself inactive, but the cause of inactivity in other solutions. Feeling confident of the power of diluted sulphuric acid to receive as much water as the animal membrane could convey, I, in conjunction with Professor Finley, carefully repeated our experiments on that substance. In every case, where the solution exceeded 1°, (Beaumé,) it was adequate to the occupation of as much water as could be presented by the membrane. At 2°, 11°, and 25°, the acidulous liquid gave the same *rate* of aqueous infiltration, as did alcohol, ether, &c. A solution of sulphate of soda, at 11°, and at 3° Beaumé, and a solution of ammonia at 40° centesimal alcometre being infiltrable by water, at a rate not less than that of the animal membrane, of course, afforded, when compared with that liquid, exactly the same results. Although all these substances gave evidence of having been contemporaneously transmitted through the membrane, yet the quantity, easily appreciated chemically, was not so great as to make a sensible difference in the altitude of the column, whose rise represented the transmission of water. When, by the entrance of a considerable quantity of water, the acid was so far diluted as to intermingle with it more slowly than the membrane could present it, a rapid diminution of ascent ensued. At length, so little was received, as to barely compensate for the effect of gravitation. Finally, the diminished power of reception being below the effect of gravitation, the liquid descended again, and the two columns reached a common level. Seeing these causes of change, we can estimate the rate solely by observing the time taken to traverse a *short space*, and that immediately at the commencement of the experiment. Unless the less penetrant liquid be of much more power of reception than is actually necessary, its dilution soon destroys its adequacy, and lessens the apparant rate, just as in forming solutions, we perceive a great diminution of solvent power, as the point of saturation is approached. In addition, when both liquids are traversing the membrane at the same time, there is a progressive approach to a common state, favourable to repose. M. Dutrochet, therefore, by observing the effect of solutions of different strength, in a considerable length of time, (an hour and a half,) obtained results, not the act of the membrane, but of the solution—not the maximum effect of the tissue, but the constantly diminishing action on water of a gradually diluted solution. His results might, therefore, have been anticipated by calculation: for, as water dissolves less and less, in a given time, of any soluble substance, so a soluble substance acts on water presented to it, in a steadily declining ratio. When the demand for water is above the powers of supply through the membrane, the rate will be regulated solely by the water and membrane, and is the same for a great variety of substances. When the demand becomes less than the supply, the case is one of simple solution, with which the membrane, may be supposed to have no connexion. It is then acting the part of a still surface of water.

The following facts, ascertained at an early period of this investigation, will place this principle in a strong light. An inverted syphon, such as already described, was filled with atmospheric air, a portion of which, by placing thirty-four inches of mercury in the long limb, was confined in the shorter one. There being here the same gas on both sides of the membrane, the current set in the direction given by impulsion and the long column fell—

$\frac{3}{8}$ths of an inch	in 2 hours and 30 minutes,	or 50 min.	per $\frac{1}{8}$th.
$\frac{3}{8}$ths more	in 2 hours and 39 minutes,	or 53	per $\frac{1}{8}$th.
$\frac{3}{8}$ths more	in 2 hours and 26 minutes,	or 48$\frac{2}{3}$ds	per $\frac{1}{8}$th.
$\frac{1}{8}$th	in 1 hour and 1 minute,	or 61	per $\frac{1}{8}$th.

1$\frac{1}{4}$ inch in the whole in 8 hours and 36 minutes.

At this period of the experiment, when the mercurial column stood two inches and a half lower, *proportionally*, than at the commencement, a vessel containing carbonic acid gas, was placed over the shorter limb. Immediately the long column began to rise—

$\frac{2}{8}$ths of an inch in 20 minutes, or 10 minutes per $\frac{1}{8}$th.
$\frac{1}{8}$th more in 10 or 10 per $\frac{1}{8}$th.
$\frac{1}{8}$th in 12½ or 12½ per $\frac{1}{8}$th.
$\frac{1}{8}$th in 37½ or 37½ per $\frac{1}{8}$th.
$\frac{1}{16}$th in 60 or 120 per $\frac{1}{8}$th.

The column appearing stationary, was left nine hours unobserved, at the end of that time—

$\frac{13}{8}$ths were lost in 9 hours, or 41½ min. per $\frac{1}{8}$th.
$\frac{5}{8}$ths in 3 hours 21 minutes, or $40\frac{2}{10}$ min. per $\frac{1}{8}$th.
$\frac{2}{8}$ths in 1 hour 24 minutes, or 42 min. per $\frac{1}{8}$th.

At this moment, the mercury came into contact with the membrane, all the gas being excluded.

The uniformity of descent, and the progressively diminishing rise are striking facts. It will also be observed, that the carbonic acid *seemed* to cease action, because of a weight of nearly thirty inches of mercury, whereas, in another experiment, sixty-three inches were readily driven upwards. We therefore easily perceived the cause of Dutrochet's mistake.

One other nullifier of endosmose is thought by Dutrochet to exist. A solution of hydro-sulphuret of ammonia at first quickened, and then totally arrested the motion of the fluid in the stem of his endosmometer; for which he accounts by supposing the final production of sulphuretted hydrogen in the solution, and the extinctive agency of *that*.

The great activity of gaseous sulphuretted hydrogen, on which Dutrochet made no experiments, led me to suspect that its solution was gifted with considerable penetrant power, and by thus counterbalancing the amount of penetrating water, appeared to act in arrest of motion, presenting just such a case as we witnessed when comparing together olefiant gas and arsenuretted hydrogen. For verification, a solution of sulphuretted hydrogen in water, was, by means of the inverted syphon, compared with water, and scarcely any motion observed. A similar solution, enclosed by an animal membrane, in a wide-mouthed bottle, was placed in a vessel of pure water, mouth downwards. In this instance the membrane gave no sign of inflection at first, but after several hours showed a slight bend inwardly. In both these cases the portion of liquid, originally clean water, when tested by acetate of lead, afforded the deep black precipitate, indicative of the presence, abundantly, of sulphuretted hydrogen.

In a second experiment, with a solution of sulphuretted hydrogen enclosed in a bottle, the water placed in the outer vessel contained the slightest trace of acetate of lead. Scarcely was the bottle immersed before the precipitation of the lead commenced. Finally, a solution of sulphuretted hydrogen in water was, by means of the inverted syphon, compared with alcohol confined in its shorter limb. In this instance, and in every repetition, the movement was manifested towards the alcohol, the rise of which showed that the penetrative power of liquid sulphuretted hydrogen is somewhat greater than that of water, and of course much greater than that of alcohol. These experiments were made with extraordinary care, because by them seemed to hang the fate of this whole question of principle. The whole doctrine of regular rate of penetration, &c. must fall to the ground if my trials had been confirmatory of the observations of M. Dutrochet.

The totally different results, as to the force of penetration, at which M. Dutrochet and myself have arrived, render necessary a few words of explanation.

It will be conceded that the fairest mode of estimating the force is when the liquid is fresh and the process just well begun. The altitude of the highest column of mercury which it can raise will represent its power, and that column should, if possible, be laid on it at once. In this manner I proceeded, and found that both bladder and gum elastic were broken by a column higher than sixty-three inches, although just before giving way, the column was rising. It could rise solely by the power of penetration, no other known agent of motion being present. But M. Dutrochet laying on a column less than sufficient, left his apparatus to raise that column for a day or two, until the process of elevation ceased. The height then reached he considered as representing the power of *endosmose*. The attentive reader will readily perceive in this plausible experiment, the same error which deprived the facts, as to time, of value. The solution had become diluted, and the water on the other side had become impregnated, and, independently in a great measure of the weight of the column, the causes of production of penetrating currents had ceased, and these beautiful experiments reported, not the weight which could be raised, but the time required by such a solution to distribute its qualities uniformly, or nearly so, on both sides of the membrane. Left in that state the column descends, thus evincing the cessation of penetration, not its *forcible* repression. This is well proved by his latest experiment, in which having raised a column of mercury by the penetration of water into a solution of gum Arabic to twenty-eight inches, and while still rising, he replaced the external water by a solution of gum Arabic, when an immediate descent was observed. The substitution of clean water again caused an elevation of the column.

On the whole, captivating as is the method, and elegant as are the experiments of this little volume of M. Dutrochet, it does not bring additional support to his doctrine of *endosmosis*. Yet whatever may be the issue of the experimental investigation to whose rigid scrutiny this most important subject is committed, the philosopher and physician can scarcely find language adequately to express the obligation, the high obligation, under which science has been laid by the elegant labours of M. H. Dutrochet. In him we discover the *punctum saliens* of a principle which is the master spirit of animal and vegetable motion, the ruling power of chemical science, the governing influence of atmospheric composition, the presiding genius of respiration, circulation, and nutrition, the cause of disease, and the restorer of health. But whatever may be *now* his fame, how little is it compared to that which may be anticipated for him by one who takes even a careless view of the mighty field of novel observation, just redeemed from the rich wilderness of nature. This tribute is paid the more unhesitatingly because it is due, and because I have so freely criticised and censured where the cause of science and truth demanded severity. It is in great men, and in great discoveries, that blemishes are most ungraceful and most injurious. The very magnitude and extent of the principle for whose detection we must thank Dutrochet, give a fearful importance to the slightest co-extensive errors.

September 18th, 1830.

ART. IV. *Notes of Cases of Angina Pectoris, with some Remarks.* By N. CHAPMAN, M. D. Professor of the Institutes and Practice of Physic, and Clinical Practice in the University of Pennsylvania.

IN 1768, a disease was described under this title by HEBERDEN, then supposed to be a new one.* Doubtless it had pre-existed, and seems, indeed, to have been previously noticed, but so casually and imperfectly, as not to command attention. Curiosity, on the publication to which I have alluded, was directed to it, and though since carefully investigated, its pathology is still exceedingly obscure and undefined.

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* London Medical Transactions, Vol. II.

An attack of the disease in most instances, according to my observations, is preceded by considerable derangement of the primæ viæ, presenting some of the phenomena of indigestion, as flatulence, sour eructations, spasms, torpor of the bowels, and pains in the limbs. But it sometimes comes on without any, or a very slight premonition, the person being suddenly seized with a painful sense of constriction of the chest in the cardiac region, or at the sternum, extending to one or both arms, the left arm more commonly—at first no further than the insertion of the deltoid muscle, though successively it reaches the elbows, wrists, and sometimes even the extremities of the fingers. This, however, is a very mild paroxysm, which will often subside on the withdrawal of the exciting cause. As appertaining to a more violent attack, it may be stated, that in addition to the pain in the chest and superior extremities, amounting in some instances to excruciating agony, having indeed been compared to the piercing of nails, or the laceration by the claws of animals:*—there is extreme irritability of the stomach, anxiety, palpitations, or constrictory pain in the heart, a sense of suffocation, which is rather from tightness and fulness in the chest, than real difficulty of breathing, with many other affections, seemingly to denote the immediate extinction of life—and it has been remarked, that patients in this state of suffering almost always believe that they are actually dying. During this period the pulse is variously affected, sometimes little changed, on other occasions irregular or intermittent, very often extremely weak, and is described as being full, active, and bounding. Each of these states I have witnessed. The paroxysm is of very indefinite duration, from a few minutes to one or more hours, according to its severity, and still more the inveteracy of the disease—it proving, for the most part, lingering and severe, or the reverse, in proportion to the long or short standing of the case, though probably the average period is half an hour of unabated endurance. Equally does this hold in relation to the frequency of its recurrences, the interval in the commencement of the disease being distant, progressively less, till finally it is so much curtailed, that there is scarcely any exemption.

Great, however, as is the distress in the paroxysm, it seems not early to affect the constitution, or to entail any permanent mischief. The individual often apparently enjoys good health in the intermissions, and performs all his functions naturally, and without embarrassment, till a short period before an attack. By a protracted continuance, however, the system begins to give way, which, as before stated, is announced by disorder of the chylopoietic viscera, and with a group of dyspeptic symptoms, there are impeded respiration, pale and doughy countenance, soft flabby integuments, œdema of the lower extremities, and the other manifestations of cachexy. But such an issue is comparatively seldom, it more frequently happening, that in anticipation of these degenerations, the case abruptly ends in a paroxysm fatally.

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* Laennec.

It is said that the disease usually selects for its subjects the middle-aged, and men more than women, especially the robust and corpulent with short necks—of habits indolent and sedentary, and very often *the gouty* and rheumatic. But it is by no means confined to individuals of the former description. In several cases which have come under my own notice, the persons were quite otherwise—or slender, and of delicate constitutions. Nearly the same remark is made by a late writer. "Of the persons," says he, "who have come under my care, as many were of a spare as full habit. I have seen," continues he, "only one under the age of fifty, and only one woman who died of it."*

The disease is usually excited by ascending a flight of stairs, or a hill, or any other acclivity, and especially when the stomach is full. It may, however, be induced by the most trivial agencies, in very susceptible habits, as slowly walking, or by coughing, loud speaking, straining at stool, or by the indulgence of passion, or by other mental emotions, or perturbations, and has frequently occurred in a state of absolute repose, the person being aroused from sleep by an attack.

The case with which angina pectoris will be most apt to be confounded, is asthma. But it may generally be distinguished by a minute attention to the circumstances incident to the history of each affection. Thus the paroxysms of asthma come on usually at the close of the day, or in the night, continue much longer, are characterized by a heavy dyspnœa, with wheezing, &c. are relieved by exposure to fresh air, and subside gradually towards morning. Neither are they excited in the same way, nor by similar causes, or marked by the position or acuteness of the pain in the sternum, arm, &c. or by several other distinctive and peculiar features. But where these diagnostics do not prove sufficient, an appeal should be made to the external means of exploration, percussion, and auscultation, and which will also clear up the obscurities as to other pulmonary and cardiac affections that have the closest analogy to angina pectoris.

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* Jurine.

In regard to the prognosis, it may be summarily stated, that, in recent cases of no inveteracy of character, cures may generally be effected. But where the case is fixed by time, and is attended by any organic lesion, or a decayed constitution, the result is the reverse, and death sooner or later inevitably takes place. Every fatal termination which I have witnessed, amounting to several instances, was as sudden as the electric shock—the movements of the heart seeming to be instantaneously arrested..

Notwithstanding the number of dissections made in the disease, no distinct light has been shed on it, owing to the great diversity of phenomena detected. We are told, indeed, that in several instances not the slightest morbid appearances could be traced. But sometimes the heart has been found variously diseased, by the ossification of its valves, or those of the large vessels, or of the coronary arteries, or by depositions of adipose matter, so as to impede its functions, or by effusions into the pericardium, or by simple hypertrophy. In the language of a late writer,[*] "it is a fact, that there is scarcely any malconformation of the heart or its blood-vessels, that has not been occasionally found after death, from what would be considered angina pectoris: while, on the other hand, individuals have fallen victims to the affection, fully marked, and the most accurate post mortem examination has not been able to detect the slightest indications of structural derangement." In some instances, the morbid phenomena have been found in other parts, the heart entirely exempt, such as water in the pleural cavity, adhesions of the lungs, thickening and other changes of the mucous membrane of these organs, dilatation of the bronchia, œdema of the cellular tissue, an abscess of the mediastinum, scirrhosity of the pylorus of the stomach, and enlargement of the liver, ossification of the cartilages of the ribs, &c.

As already intimated, our knowledge of the pathology of the disease, is not at all precise, or satisfactory. By the earlier writers on the subject, it was held to be spasmodic, though the part immediately concerned, seems not to have been designated, or understood. This hypothesis is rendered probable, by the general complexion of the case—its causes, symptoms, and cure, and by its analogy to the diseases confessed to be of this character.' Entertaining such a conviction, it is called by DARWIN, *Asthma dolorificum*—and by ELSNER,

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[*] Uwin's Compendium of Theoretical and Practical Medicine.

Asthma convulsivum. By Fothergill, it was supposed to be occasioned by obesity, and particularly a collection of fat in the chest—and sometimes, as he thinks, it may be symptomatic of water in this cavity, or in the pericardium.

It has, however, subsequently been attempted to be shown, by Parry, that it is a species of syncope, denominated by him, syncope anginosa, occasioned by an accumulation of blood in the heart, from an ossification of the coronary vessels, in which veiw, he was supported by Jenner, Bostock, Burns, Kreysig, and many other authoritative writers.

To this opinion, it may, in general, be objected, that there is no evident connexion between the effect and the cause. That an ossification of these vessels may be productive of great disturbance in the animal economy, is exceedingly probable, though such is not uniformly the result, without however affording reason to believe, that the peculiar agony and distress of angina pectoris, would be the consequence. The cause being permanent, the disease too, should continue at all times, with little or no abatement. But so far from this happening, we are told by all the writers, in which my own observations coincide, that there is often very good health in the intervals of the paroxysms.

Completely, however, to confute this notion, it is only necessary to mention, that in several instances of the disease, which terminated fatally, no such morbid appearances could be discerned about the heart. Laennec expressly tells us, that he has examined several subjects who had laboured under the disease, and in none of them did he find the coronaries ossified. Even where the alleged ossifications existed, the complaint sometimes was very obscurely and indistinctly marked. Cases, indeed, are recorded, by Morgagni, Senac, Watson, and Corvisart, in which ossifications had no effect whatever of this kind. The same thing has more recently been remarked by Shaw, in his manual of anatomy, who says, that in many old people, never having had the slightest symptom of the disease, he has found the coronary arteries like tubes of bone, through their whole course." *

By a distinguished writer of our own country, Dr. Hosack, it is conjectured, that the disease proceeds from a "plethora of the blood-vessels, more especially from a disproportionate accumulation in the heart and larger vessels." Considering this to be scarcely better founded, than the preceding hypothesis, I shall not enter into any detailed examination of the arguments or facts by which it is endeavoured to be sustained. It may be sufficient for my present purpose, merely to observe, that, even allowing the fulness and irregularities in the circulation contended for, as the basis of the hypothesis, which I am by no means disposed to do, as uniform concomitants, these I should take to be rather the effects of previous irritation, or excitement, than the cause of the disease. Do we not also know, that such a condition of the vessels can exisit without inducing angina pectoris? Were fulness and irregularity in the circulation only required, for the production of the disease, instead of a rare, would we not have it as a daily occurrence? The fact, moreover, is, that angina pectoris, though oftener perhaps, attacking the plethoric, is to be met with, as I have before said, in the feeble and attenuated.

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* Med. Com. Vol. 1. 234.

Taking every thing into view, JURINE is led to consider the disease as a nervous affection, which opinion he supports by a long train of reasoning. Comprised in a few words, his arguments are deduced from the unexpectedness of the attack—its suddenness of termination in death, or restoration to health—the nature of the exciting causes of a paroxysm—the equality and regularity of the pulse—the peculiarity of the respiration—the painful sensation extending to the upper extremities—and finally, the method of cure, by antispasmodics, &c.

The proximate cause, says he, is connected with an affection of the pulmonary nerves, which disturbs the function of the lungs—impairs the decarbonization of the blood—and produces, previously to an attack, the pain in the sternum. This morbid affection of the pulmonary nerves, must in time be communicated to the cardiac plexus, and affect the heart and vessels secondarily. The imperfect decarbonization of the blood, lessens its stimulating powers on the heart and lungs—gives rise to reiterated attacks, until this stimulus being exhausted, occasions the death of those organs, and then of the brain.

Laennec has adopted the same view of its nervous pathology, with this difference, that he considers the seat of the affection may vary according to circumstances. Thus, he states, that when there exists simultaneously, pain in the heart and lungs, we may presume, that the affection is principally seated in the pneumogastric, and on the contrary, where there is simply stricture of the heart, without pulmonary pain, or difficulty of breathing, its site is in the nervous filaments, which the heart receives from the grand sympathetic. But other nerves may also, at the same time be implicated, either by sympathy or from direct anastomosis, and the branches of the bronchial plexus, particularly the cubital are nearly always so. The anterior thoracic originating in the superficial cervical plexus are, moreover, frequently affected, and this is sometimes further the case with the branches derived from the lumbar and sacral plexuses, when the thigh and leg participate in the attack, which occasionally happens.

That the disease is a species of neuralgia, I am entirely persuaded, commencing for the most part in the pneumogastric nerve, and spreading in different directions, as other nerves may become involved. The derangement of the heart and other structures, with which it is sometimes associated, I hold to be coincidences or effects, and not the cause, since, among many reasons which might be adduced in corroboration of it, the disease has undoubtedly prevailed independently of such organic lesions, and conversely these have existed, without occasioning it. But, what is the immediate cause of that irritation of the nerves, inducing this neuralgic condition, giving rise to the subsequent phenomena of the disease? This is a question, which hitherto has not been clearly answered. My conviction is, that it is derived from irregular gout, which misplaced, thus operates as an irritant to the nerves, and probably first of those of the stomach.

Time will not allow of my vindicating, by any detailed exposition, this piece of pathology. Nor, perhaps, is it required. It may, however, be remarked, that mostly the subjects of the disease are of the period of life, the constitution and habits liable to irregular arthritic affections, which are well known to be Protean in their character, exhibiting every diversity of shape and aspect, and particularly of asthma: that in nearly all cases, an attack is preceded or attended by more or less derangement of the alimentary canal, manifested by flatulence, sour eructations, cramps, and costiveness: that the pain goes off reversely from that in which it comes on, subsiding first at the extreme point, and the paroxysm closes with belchings, &c.: that, in the intervals of the attacks, the individual enjoys for the most part good health, till, by long continuance, the constitution becomes shattered. These are particulars in which it very closely resembles atonic or misplaced gout, and I may add, in confirmation of the stomach being the seat of the disease, that the disturbance in the functions of the lungs, or of the heart, invariably presents more the appearance of secondary, than primary affections.

The phenomena sometimes revealed by *post mortem* examinations, already noticed, do not in the slightest degree invalidate this hypothesis. They are, indeed, very much such as might be expected in structures, long a prey to the disorganizing influence of gout, and which have actually occurred, where there was no doubt of the existence of that very disease.

What, however, completely establishes my faith in the arthritic nature of angina pectoris, is, the history of several supposed cases of that disease, which, after a long continuance with the ordinary symptoms, and treated accordingly, terminated in unequivocal gout.

Case I.—The first of these cases was that of a distinguished member of the bar, aged fifty-seven years, of slender form and temperate habits, to whom I was called in the night, during the winter of 1811. The moment I entered his chamber, I recognised all that sort of distress which characterizes this disease. He told me, that he had for several years previously, been subject to attacks of angina pectoris, for which he had been treated by Dr. Kuhn and Dr. Wistar. His pulse being active, with great agony in the region of the heart, he was bled copiously, and suspecting gout, though I was assured he was not liable to it, sinapisms were applied to the feet, and the carbonate of ammonia, with wine whey, freely administered. In the course of a few hours arthritic swelling seized on the knee joint, with the occurrence of which all other uneasiness instantly subsided. By such a course of management, as will hereafter be detailed, he recovered his health, never having afterwards an attack either of angina pectoris or gout.

Case II.—In the spring of the same year I was requested to visit a lady in the country, of middle age, great corpulency, and of indolent or sluggish habits. The account which she gave me, was, that for a considerable period she had suffered extremely from various thoracic uneasiness, which had been pronounced by the above distinguished physicians to be angina pectoris, and treated accordingly. The attacks she told me were then so readily excited, even by the slightest exertion, that she was compelled to remain almost stationary in her room. Learning that both of her parents, and particularly the mother, were gouty, though she had hitherto escaped, I thought it adviseable to venture on a practice dictated by the supposition of its existence in her case, and accordingly, after the loss of a pint of blood, directed that her feet should be immersed morning and evening in a warm mustard bath, and thoroughly rubbed, to take the carbonate of ammonia, and to use moderately sherry wine. Not deriving any essential benefit from this treatment, she came to the city, and on the very afternoon of her arrival, I saw her in a violent attack of the disease. Cupping was ordered between the shoulders, and over the cardiac region, and a pair of blisters to the ankles, after a stimulating pediluvium. During the night she had a paroxysm of podagra, which completely relieved the embarrassment of the chest, and from that time, till last summer, when she died of dysentery, she had no return of the anginose affection, though annually more or less of regular gout.

Case III.—Early in the morning of March, 1813, I met Dr. James Rush in consultation in the case of a middle-aged gentleman, of robust make, and plethoric condition, who for several hours had laboured under a paroxysm of angina pectoris; to which disease he had been a martyr for many years. With his case I was familiar, having often attended him before, as the pupil of the late Professor Rush. His sufferings, at the moment of our visit, were very distressing. Having been bled previously, to which he always resorted on an attack, we ordered the carbonate of ammonia, wine whey, and sinapisms to the lower extremities. To our great satisfaction we found him, on our return after breakfast, entirely relieved by a fit of podagra, which had taken place in our absence. With orders to continue the remedies till our next visit, we left him. But deeming himself well, these were omitted, and he arose from his bed, and seated himself by the fire, thinly clothed, especially as regarded the feet. In this position, while engaged in cheerful conversation with a friend, he suddenly exclaimed, that the gout had quitted his foot, and seized on his heart, and in a moment expired.

Case IV.—In the spring of 1824, I was requested by Dr. Physick, to visit with him a gentleman from the country, aged about fifty years, who informed us, that for several years he had been sorely afflicted by a complaint, considered by all the physicians whom he had consulted as angina pectoris. The history given us of the case, embraced most of the prominent symptoms of that affection. Attacks of it he told us were of very frequent occurrence, and brought on by the slightest causes, from one of which he was then suffering partially.

As the ordinary practice had utterly failed, we determined to treat the case as irregular misplaced gout, and with a view of drawing it to the extremities, employed the customary revellents with carbonate of ammonia and wine whey. On the third day of our attendance, the gout became fully fixed in the elbow joint, and in every other respect he felt perfectly well. Most unhappily, however, having omitted the remedies during the night, he arose in the morning to be shaved, and while the barber was occupied in that office, he insisted on performing it himself, as he had regained the use of his arm, from the cessation of the arthritic swelling. But scarcely was the razor in his hand, when he complained of sickness of stomach, with excruciating pain in the left side, and sunk lifeless on the floor.

Case V.—In the autumn of 1824, I was consulted by a gentleman of Baltimore, who had previously been under the care of some highly respectable physicians for this disease. He was then in the meridian of life, of originally vigorous constitution, somewhat impaired by a generous mode of living. He told me that he had constantly dyspepsia, and occasionally after a full meal, or by walking quickly, was seized with violent pain in the chest, extending down the left arm, and with excessive embarrassment of respiration. The idea of gout he discarded, as belonging neither to himself nor immediate progenitors, but was willing that the case should be so treated, and with written directions to this effect he returned home. Three years afterwards, he called to assure me, that his health had been perfectly restored by an attack of gout, which came on some months after having formerly seen me.

Case VI.—During the last summer, I was consulted by a lady of Louisiana, who transmitted to me a full statement of her case by her medical adviser, which was so strongly characterized as to leave no doubt of its being angina pectoris, and such it was viewed by him. Though there was little reason to suspect either hereditary or acquired gout, I suggested, on the authority of the preceding cases, that it should be managed under this impression of it, and I had the pleasure to learn very recently, that having had an arthritic attack in the wrist, she henceforward recovered.

It were easy from my own experience to supply further illustrations of the correctness of the hypothesis which I am endeavouring to support. But I have afforded the most striking instances, and to proceed with recitals of this kind, might be tedious, and even prolix. It would be more satisfactory, I am aware, had I given these cases in detail. But having no design to publication, I preserved only such a synopsis of them, as is suited to read in a lecture, from which they are now extracted.

It was once my conviction, that this pathological view was original with me. But I have discovered that Burton, in a small treatise on the subject, entertains nearly the same notion, and hence denominates the complaint "*Diaphragmatic Gout.*" Even he, I have also ascertained, has been anticipated by a German writer of the name of SCHMIDT, who, in conformity to his particular views of its nature, entitles it, "Asthma Arthriticum."

The treatment of this disease is necessarily divided into what is proper during the paroxysm, and in the interval, in reference to a radical cure. As soon as possible the patient is to be placed in a state of rest and tranquillity. Next, where the symptoms are urgent, and the pulse tolerably vigorous, we are to use venesection, and to prove effectual, the quantity of blood detracted must be large. Ten, fifteen, or twenty ounces are to be taken at once, and we may sometimes find, in the more violent cases, a necessity for repeating the operation in the course of a very short time. The fact is, that the case may be of such a nature as to admit of no delay, and, as in some similar emergencies, a feeble and timid practice is inevitably fatal. It is therefore a good rule to urge the lancet till relief is afforded, or as far as we can consistently with safety. But should this general depletion be forbidden, or prove ineffectual, cups or leeches may be applied with great utility to the back or cardiac region, and a blister to the breast. The bowels are then to be opened freely with some prompt purgative.

It will be perceived, that the course I have recommended differs very widely from that indicated by most of the European writers. Considering the complaint as spasmodic, they resort pretty much to the class of means, the best suited, in their estimation, to overcome this form of diseased action—such as opium, ether, musk, camphor, &c.

No doubt, either in the incipient stage of the paroxysm, or when it is in a measure subdued by depletion, this treatment will very often answer well. It is precisely what I would do under such circumstances, and have done, with the greatest advantage. Given, at the very commencement of an attack, a dose of laudanum, or ether, we shall find, very generally, to afford relief—and either of these articles, or the musk julep, is not less effectual after depletion. The point for which I contend is, that the paroxysm being completely formed, and of a vehement character, attended by severe cardiac spasm or engorgement, can only be subdued, or at least, that it is more speedily and effectually subdued by venesection, and its auxiliary evacuations, than by any other means. Yet, where the strength of the patient is greatly depressed, we must recur to venesection with circumspection, lest in such state the system should not react, and we might produce irreparable mischief.

To invite the disease to the extremities, is an indication never to be lost sight of at this period, to effect which, we must resort to stimulating pediluvia and sinapisms, or blisters, with all the other measures employed under similar circumstances in irregular or misplaced gout. By this course I have sometimes succeeded in affording speedy relief.

This brings me to the consideration of the remedies to be directed in the interval of the paroxysm. They are topical and general, and with the former I shall commence. Every practitioner confesses the importance of establishing some counter-irritation or drain in this disease. It was formerly the custom to accomplish this by a perpetual blister to the chest, but of late the peculiar irritation from the emetic tartar plaster or ointment, seems to be preferred, and is now very generally substituted.

Yet, scarcely less is said of the efficacy of issues introduced into the inside of the thighs, by which alone there are recorded not fewer than eight or ten cures, proceeding too from such authorities as M'Bride, Darwin, &c. &c. As encouragement to this practice, it is stated by Blackall, that one of his patients, who had never for a single week been free from the disease for ten years together, lost every vestige of it for the last nine months of his life, during which he suffered from ulcers of his legs.

By Laennec a remedy has been very confidently proposed, with which I have no experience, and merely mention it on his authority. It is the magnet, used in the following manner. He applies two strongly magnetized steel plates of a line in thickness, of an oval shape, and bent so as to fit the part, one to the præcordial region, and the other exactly opposite on the back, in such a manner that the magnetic current shall traverse the seat of the affection. Without claiming infallibility for this remedy, he avers, that it has succeeded better in his hands than any other, as well in relieving the paroxysm, as preventing its return.

The general treatment usually consists chiefly of those tonics and nervines which are so much relied on in all the nervous or spasmodic affections. The bark and valerian had at one time a high reputation. But neither these, nor any other of the vegetable tonics, are now much used. Much more confidence is placed in the mineral articles, and especially in the preparations of copper, zinc, and the nitrate of silver. Cures are reported to have been performed by each of these medicines—two very remarkable cases of which, are to be met with in the London Medical and Physical Journal, by Dr. Cappe, in proof of the efficacy of the last.

No one of the preceding articles have I ever employed. Convinced of the correctness of the pathology of the disease, which I have advanced, I have always acted accordingly, in the management of the cases of it presented to my attention. The plan I pursue is, in the first place, to inculcate the importance of studiously avoiding all the exciting causes of a paroxysm—and, next, to conduct the treatment exactly on those principles, and by the remedies suited to an atonic or disordered stomach, so as to do away the predisposition to spasm. It is essentially necessary, with this view, that the diet be light and digestible—that the bowels should never be constipated—and that exercise in a carriage or by equitation, be moderately used. It is of consequence to recollect, that in some of these cases, when the slightest movement on foot brings on a paroxysm, or proves highly distressing, any degree of exercise may be taken in the modes just indicated.

In the case attended by Dr. Physick and myself, which was formerly mentioned, this was remarkably exemplified. We were told that though the individual, who was a lawyer, could not walk a short distance between his office and the court-house, without bringing on a paroxysm, he could go thither and plead a cause, provided he was transported on a horse, or by any vehicle, and had even performed long journeys comfortably by such conveyances.

As respects medicines, such as are applicable to dyspepsia, will here answer well, and particularly the martial preparations. But, where there is a strong propensity to spasm, the articles formerly mentioned may probably be called in, with advantage, though hitherto I have met with no case in which they were required.

As preventive of an attack, plethora should be guarded against, by occasional venesection, or purging, or by reduction in the mode of living, adopting the lightest possible articles of food. In those cases where the paroxysm is apt to occur at night, an opiate at bed-time is recommended by Heberden, and from which I have seen very decided advantage. It is in this way, that I have managed angina pectoris, and with such success, that I cannot help recommending it, with some confidence, to imitation.

Whether the cases which I have met with, were the genuine disease, I will not positively say. Certain it is, however, that they were marked by the ordinary symptoms, and most of them considered as such, by the highest medical authority, who concurred with me. Yet, we are not to expect uniformly to cure this disease. Cases of it, inveterately fixed by time, are commonly attended by some organic lesion, and when this happens, they will prove wholly intractable, to any, and every form of practice.

Philadelphia, Sept. 1830.

ART. V. *On the Comparative Influence of Vegetable and Animal Decomposition as a Cause of Fever.* By USHER PARSONS, M. D. Professor of Anatomy and Surgery, Providence College, R. I.

IT is supposed, that one-sixth of the human species die of fever. As a majority of cases have seemed attributable to natural causes, unremitted attention has been given to their investigation. But notwithstanding the importance of the subject, and the weight of talent that has been employed, it involves important questions, that still remain undecided; among the most important of which, are those we have selected as the subject of the present communication.

In discussing these questions, our attention will be directed *first*, to the effect of vegetable decomposition; *secondly*, to that of animal decomposition; *thirdly*, to the comparative influence of both as a cause of fever.

I. *The effect of vegetable decomposition on the human body.*—The depopulation of particular regions—the destruction of armies quartered therein—and the greater prevalency of fevers at certain seasons, than at others, gave rise to a particular examination of the soil, face of the country, and atmosphere, peculiar to those places. It was soon ascertained that fevers prevailed most in marshy, moist ground, wherein vegetables having grown, die and putrefy. This led to the belief, at an early period, of their being caused by putrefaction, and this belief has become so generally and firmly established, that a statement of it at the present day wears the air of a truism. It may, however, not be amiss, on the present occasion, to re-examine the evidence on which such belief has been maintained.

1st. Is fever proportioned in frequency and intensity, to the amount and rapidity of vegetable decomposition? The rapidity of this process is regulated by the degree of heat and moisture. Either of these agents, without the other, fails of producing it. If moisture be increased till it excludes air from the surface of vegetable matter, decomposition is suspended, and the same effect is produced, if heat be increased till moisture is dissipated; as also when the surrounding atmosphere is reduced to the freezing point. But when the temperature of this ascends from 32° Fahrenheit, the proper quantity of moisture being present, decomposition increases in direct ratio with it, till the degree of heat rises to 100°. Let us now inquire whether the frequency and intensity of fever prevails in countries where decomposing vegetables abound in proportion to the degree of heat and moisture.

In respect to heat, we may observe that the ancients discovered at an early period, that its prevalence coincided with that of fever. To this agency alone, they attributed the malignant fevers that wasted their armies, and depopulated many regions. They observed too, that frost arrests, or mitigates all fevers, which they had ascribed to the influence of this cause;—that it stayed the progress of intermittent, bilious, remittent, and yellow fevers;—that such fevers were unknown in the winter season of temperate climates, and that they commenced only in the summer, and declined in autumn. Later writers have observed, that within the tropics, no season is exempted from the occasional appearance of these fevers, and that in some parts, they prevail through the year:—that winds from the north even in summer, render them milder in all places; that even the shade of trees moderates their violence, while this, on the other hand is greatly augmented, when the trees are cut away, and the surface of the ground left exposed to the direct influence of the sun. Hence, the first settlers of a wilderness suffer less from fever, than those do who arrive immediately after forests are cleared, and before decaying substances are removed from the ground by cultivation. The severity and duration too, as well as the frequency of fever, is influenced by the degree of heat. This is observable both in respect to different seasons, and to different latitudes, and also to different altitudes of the same place. In some latitudes, vernal intermittents are succeeded as the season advances, by bilious remittents, corresponding in severity to the elevation of temperature; and when this is very high, and long-continued, they assume the malignant type. In the autumn again, they become milder, and are finally checked on the accession of frost. In respect to their duration, we find that in England, and in corresponding latitudes on the continent, fevers appear in August, and prevail through September, declining as the cold weather approaches. In the Netherlands, they appear in the latter end of July:—in the campagna of Italy, and in Spain, early in July: in Sardinia and Minorca in June, and are prolonged till late in November; in Egypt in May, and they prevail both earlier and later in Gambia nearer the equator.

The same remarks apply to this country, making allowance in comparisons with Europe, for difference of temperatures in corresponding latitudes. The fevers we have mentioned are hardly known in Quebec; are rare and mild in New England, excepting in extremely hot seasons, when they produce yellow fever: its exemption from intermittents and remittents being ascribable to other causes than an appropriate degree of heat, and which will be noticed hereafter. Passing southward we find the frequency and severity of fevers increasing in Maryland and Virginia, still more in South Carolina and Georgia, and appearing earlier and later till we reach New Orleans, where fever of a malignant character prevails during a great part of every summer.

In respect to difference of altitude, heat, in conjunction with other causes to be noticed, acts with more effect on the low grounds of tropical climates, than on elevated situations, where the temperature is cooler. Monks-hill in Augusta, says Dr. FERGUSON, is quite exempt from yellow fever at the height of six hundred feet. On the Ridge, a sloping hill in India, three hundred feet above the marshes, the yellow fever of the marshes disappears, and the common remittent takes its place, while at the top of the Ridge, five hundred feet high, the troops are exempt from disease.[1]

The same remark applies to the fevers of Cuba. "Tivoli, less unhealthy by far than Rome, is three hundred feet above Rome. Sezza, exempt from diseases, is nine hundred feet above the Pontine marshes."[2] It appears then, that in proportion to the degree and duration of heat, other causes concurring, is the severity and duration of fevers, until the temperature rises to 100°. "Putrefaction takes place most readily," says FORDYCE, "in a heat of 100° of Fahrenheit's thermometer. It goes on much more slowly in a heat of 110°; it goes on more slowly in *less* degrees of heat than 100; and scarcely at all at 40°."

In respect to moisture, it may be observed, that when this is wanting fever rarely occurs; and when it is entirely dissipated, fevers that have prevailed disappear. It has a most important influence in modifying the influence of heat. In some dry situations, the hottest seasons are the healthiest. LIND states, that the hottest season of Senegal is the driest, and at the same time the healthiest. The inhabitants near the hot deserts of Africa, are invariably free from epidemic fevers. "In the hot countries within the tropics, in general, the hot and dry season is healthy." Lind, speaking of Guinea, says, this, as most tropical countries, has, properly speaking, only two seasons, the wet and the dry. The former is of about four months continuance, and is the season of sickness; whereas, for many months in the dry season, most parts of this country are equally healthy and pleasant with any in the world. No sooner, however, do the rains set in, than the ravages of disease commence, and continue throughout the wet season, and afterwards, till the attendant moisture is evaporated. As soon as this is effected, the health of the country is restored, except in those places which continue wet throughout the year. The same thing occurs in this country. Wet seasons, if hot, being generally more sickly than dry ones. The wet seasons of 1804, 1821, and 1823, were very sickly, and the dry one of 1822 was comparatively quite healthy. If there be exceptions, if dry seasons produce local epidemics, they are uniformly in marshy places, or in artificial ponds, where evaporation exposes decaying vegetables that were previously inundated. Hence it is that there are some, who, even in the present advanced age of medical science, believe that moisture alone will produce intermittent, remittent, or bilious fever.

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[1] American Quarterly Review. Vol. IV. p. 296. [2] Ibid.

But let such inquire of those who sail on the great lakes of this country, particularly Erie, and they will find that vessels anchoring in the months of July and August on those parts of its shores that are marshy, have their crews affected either with intermittent or remittent fever, according to the advancement of the season, and that new cases cease immediately to appear, on sailing from such anchorage to the central part of the lake, or to a port having a bold shore, or which is destitute of decaying vegetables. In sailing from this lake during midsummer to Lake Michigan, crews are apt to suffer more or less with fever from passing through the river St. Clair, especially if detained by head winds, and the inhabitants of both its shores have suffered from fever and ague more than almost any other section of country, yet, on entering Lake Huron, new cases of fever in such crews immediately cease to appear.

From the sick records of the surgeon of the United States' squadron on Lake Erie, I have found that the ships anchored at Put-in-bay, with healthy crews, in the month of August, 1813, that while there, and at Sandusky Bay, a few miles from it, which was still more marshy, there occurred in the space of three weeks more than one hundred cases of bilious remittent fever, and forty of them in the flag ship, her crew consisting of one hundred and thirty men—that on sailing in this time upon a short cruize across the lake to Malden, the fever was entirely stayed, but that new cases began to appear immediately on returning to their former anchorage, and that after the 10th of September, the day they sailed some ten or twelve miles to meet the enemy, no new cases occurred. In these lakes there is no salt to correct the febrific quality of the moisture in ships, and yet they are healthy when in the centre of the lake, whilst persons have, within my knowledge, caught intermittents and remittents by passing in a steam-boat in a clear night through the *marshes* between

New York and New Brunswick, although the water all the way is salt.

But, while we deny that moisture is the sole cause of such fevers, we repeat that it is necessary for the progress of putrefaction, and consequently for the generation of fever. If there are apparent exceptions, if some places that appear arid are nevertheless sickly, it will be found that they are remarkable for having dews at night which act like rain on decomposing vegetables.

> "This accounts for the fevers produced in the arid tracts near Lisbon, mentioned by Dr. Ferguson, remarkable for their dryness. Moisture may also flow below the surface when this appears parched. On many of the water-courses which run between the ridges of the hills in Sicily, the streams often disappear below the gravel, and pass to the sea, near which, water is found about a foot below ground. These hidden streams produce decomposition of vegetables and also fevers."*

But if, on the one hand, a total dissipation of moisture will arrest the progress of vegetable decomposition, and at the same time of fevers, so on the other hand the same effects will be produced by its superabundance. Thus, a bilious fever was arrested in Brabant, by inundating a marsh in its neighbourhood, and Sir John Pringle relates, that the inhabitants of Breda adopted the same expedient with success. The marshes of Delaware are innoxious in seasons when they are completely overflowed. "The same is said by Dazille, of the marshes of Cayenne." Excessive rains have produced the same effect in many places in this country. In short, whenever moisture is sufficient to exclude air, the process of decomposition as before stated, is suspended, and with it also the prevailing fevers we have mentioned. It is only then, where heat and moisture are duly proportioned, that fevers are produced, and these will be severe in proportion to the combined activity of these agents, a sufficient quantity of dead vegetables being present for them to act upon.

A sufficient quantity of vegetables we repeat, for this is as important to the morbific result, as the agency of heat and moisture. Whenever this is most abundant, heat and moisture acting in due

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[*] The same thing was observed in Dutch Brabant by Sir John Pringle. Where the soil is light, and penetrated by water every where beneath the surface, and in summer loads the air with vapour, even where no water is visible. The people are more or less subject to intermittent fevers, in proportion to the comparative distance of the water from the surface, so that by looking into the wells, one may form a judgment of the healthfulness of the several villages.—*Observations on Diseases of the Army, p.* 2.

proportions, there fevers will be most prevalent, their intensity or malignancy increasing according as the heat approaches the degree of 100° of Fahrenheit. Salt marshes have been supposed to form an exception, but this is a mistake. "They produce fever in Normandy, and on the French shores of the Mediterranean, in Spain, and throughout the south of Europe." In Holland, the severest seasons of fever have succeeded irruptions of the sea. The same thing is observable on our own sea-coast, and several writers have observed, that putrefaction is more rapid whenever salt and fresh water intermix upon vegetables, and that salt marshes situated at the confluence of fresh and salt water, are more pernicious to health, than marshes surrounded by fresh water—and the effluvia exhaling from them in hot weather, every one must acknowledge, is more offensive.

In tropical countries, sickness prevails most in low and marshy plains, as Benin, New and Old Calabar.*

"All those cities and stations in Africa, Asia, and America, which have been the grave of unnumbered thousands, are situated at the mouths, or on the banks of rivers, in flat countries, which in the rainy season, become one vast morass."†

In more temperate climates, similar spots are the seat of endemic fevers of a milder character. The artificial morasses, produced by building mill-dams, are the spots noted for disease—of this, every neighbourhood affords instances.‡ Where vegetation is rank, and forms a thicket of grass and reeds, and these become moistened and matted together, they form what is termed a jungle. This kind of materials is so fruitful a source of fever, that in many places it has given rise to the name of jungle fever. The swamps and shores of lakes, ponds, and rivers, when first cleared, present to the sun great quantities of underwood and jungle, which had before been excluded by dense foliage. "The dreadful fever, affecting the first settlers of the Gennesee country, from 1796 to 1800, arose from their clearing and settling the rich bottom land."§ Doubtless, much of the salutary influence of the foliage of trees is ascribable to the changes produced upon the air by vegetable respiration. The ancients held their groves to be screens to their health, and "the unhealthiness of the Porta del Populo at Rome, arose from cutting down a wood that served as a screen to that part of the city." When cultivation of the soil has taken place for some time in the new countries, and vegetable matter is decomposed on the ground, and dried by ditching and draining, the inhabitants suffer less from fever—hence intermittents which, in their early settlement prevailed extensively in the western parts of Massachusetts and in Connecticut, on the rich bottom lands and *intervales*, have quite disappeared. But it is unnecessary to dwell longer on the well-known febrific tendency of marshes, and other moist places covered with dead vegetables in hot seasons. It is known not only to the profession, but even to the vulgar, and to the less enlightened nations—to the lower orders of Europe, to the negroes of Africa—and it is familiar to all the yeomanry of this country. Scarce an individual can be found in the profession, who doubts* that intermittent, remittent, and yellow fevers, are proportioned in frequency and intensity to the amount and rapidity of vegetable decomposition.

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* Lind.

† Cooke, Med. Record. Vol. VII. p. 451.

‡ Ibid.

§ Amer. Quar. Rev.

This is, however, to be understood as referring to vegetables that are similar in kind. Different vegetables vary in their morbific effects, while undergoing decomposition. It is not produced at all by dead peaty bogs, or by peat which carries on no vegetation. Blades of grass are less baneful than more succulent plants, as cabbage and the bulbous roots, potatoes, turnips, &c. Large wood decays more slowly in successive concentric layers, and generates miasm slowly in proportion to its bulk, but "the poisonous effects of putrefying flax, hemp, indigo, and coffee, are well known in the storehouses on the wharves of New York and Philadelphia." Perhaps this more deadly character may be owing to confinement and concentration, and to the fact that a sort of fermentative heat is generated in the centre of the mass.

If required to specify instances in this country, wherein fever proceeded from vegetable decomposition, we might name a great number that are recorded in the early medical journals of New York and Philadelphia. The Medical Repository was commenced early after the prevalence of yellow fever in Philadelphia, and other seaports, and received the reports of physicians respecting it, from every quarter. The five first volumes contain a large number of instances, where yellow and malignant fever was decidedly and unequivocally referable to vegetable decomposition. In some instances, fever was traced to damaged coffee, in others, to vegetable filth in docks, in others, to marshy ground, and some sporadic cases occurred in houses whose cellars contained rotten cabbages, potatoes, and turnips. The prize dissertation of Dr. COOKE, in the Medical Recorder for 1824, furnishes more histories than any other publication, of the remittent and intermittent kind of epidemic fevers in the middle and southern states, ascribable to no other cause than the foregoing.

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* "In the campagna of Rome, it is remarked, that if the labourers cut down certain plants, (a bushy thistle chiefly, of which the botanical character has escaped me,) a fever that otherwise would not have occurred, is the consequence. The malaria seems, or is thought to be entangled within it, and to be let loose by this disturbance."—*Macculloch.*

"And indeed so intimate and obvious is the connexion between such cause and effect in a vast majority of cases, that wherever fevers of the last mentioned character appear, we are warranted in ascribing them to such causes, even where its existence is not manifest."[*]

The febrific cause may arise from stagnant pools, from the banks of rivulets and fish-ponds in the neighbourhood that were never suspected of it, or it may be brought from a distance by unknown currents in the air, and affect the residents of an apparently healthy situation. It may do this too, when persons residing nearer the source, but in places of different altitude shall escape its baneful influence. "Sometimes a house on the very bank of an unhealthy river will be comparatively healthy, while places, even high grounds, at a distance, will be affected, manifestly because it (malaria) is transported thither by breezes or currents of air." Dr. MACCULLOCH, in his invaluable work, cites numerous cases in proof of this position.

Generally, however, the baneful product of vegetable decomposition, if undisturbed by breezes and currents, hovers around its source in the lower stratum of the atmosphere, and in the same temperature of it ascends only to a certain height, leaving the other strata comparatively free; hence the upper stories of houses near it are, with few exceptions, depending on vertical currents, far more healthy than the ground floors. When the air is heated by artificial fires, or by the sun, the poisonous exhalations are rarefied, diluted, or dispersed, and are less morbific; but on the approach of evening dew, they are condensed, and as it were, precipitated nearer the earth, where meeting new exhalations, they are concentrated and more baneful in their effects.[†] Hence, the beginning of the evening causes more cases of fever than midnight, when the poisonous exhalation is completely condensed upon the soil, and this last more than mid-day when it is rarefied and diluted and dispersed by heat.[‡]

In respect to the distance to which malaria may be conveyed horizontally, by currents of air and wind, various opinions have prevailed, some having limited it about the spot where it emanated, while others think it may be transported many leagues. BLANE presumes that the malaria never reaches beyond three or four hundred yards in a horizontal direction, provided it be calm. Macculloch thinks that the intermittents of the west of England and Scotland are caused "by malaria transported from Holland, or the shores to the northward of it by fog and east winds." There are numerous records of ships that make the distance which malaria has come and affected their crews from two to six miles. But the maximum distance is not yet satisfactorily ascertained.

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[*] Macculloch. [†] Lind.

[‡] The Italians say, that however deleterious the evening air may be, the night air after 10 o'clock is not so.—*American Quarterly Review, Vol. IV.*

But what is the substance exhaled that bears so much disease on its wings? "Perhaps the best and the truest account of its nature would be," says Dr. Macculloch, "an acknowledgment of utter ignorance." Miasma or miasm is its common name, and those who maintain that morbific exhalations proceed from animal as well as vegetable substances, distinguish this by the term marsh miasma. "In Italy, the locality of such putrefying vegetables go by the name of maremmes, and the infectious matter there generated, when mixed with the atmosphere, is malaria, bad air." It was the ancient opinion that the deleterious quality of the air impregnated with it, is owing to animalculæ, which invade the body through the lungs, sometimes perhaps through the stomach, and even through the skin. "This is a speculation," says Dr. Macculloch, "that dates as high as LUCRETIUS, VARRO, and COLUMELLA, which seems to have been revived in the days of the microscope, by KIRCHER, and some others, and appears naturally enough to have found favour with Linnæus." A learned reviewer of Macculloch at the south, has adopted this opinion, and maintained it with many plausible and ingenious arguments, which but for their lengthening this paper beyond reasonable bounds, I would gladly insert.[*]

It was attempted by many learned chemists to discover the poison among the ascertained chemical gases, and it was referred successively to carbonic acid, azote, hydro-carburetted, hydro-phosphuretted, and hydro-sulphuretted gas, and even ammonia, and also to a yet undiscovered compound of azote and oxygen, called septon. But as these gases can be applied to the human body in a more concentrated degree in the laboratory without producing fever, it was attempted by means of analysis which modern chemistry furnishes, to examine the air produced by marshes, and to inquire whether it did not really contain some peculiar volatile substance or compound, an *un-*

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[*] See American Quarterly Review, Vol. IV. p. 286.

known gas, the true source of the evil. The eudiometrical experiments of GOTTONI and MOSCHATI, produced no results, as might have been anticipated. Nor is malaria cognisable by the senses. It is supposed by common observers to be the same as the effluvia arising from marshes, which makes so strong an impression upon the olfactories in the twilight of evening. But although often, and perhaps generally, combined with such effluvia, yet "we do know," says Dr. Macculloch, (p. 50,) "from ample experience, that malaria occurs in abundance where there is no smell."*

How does malaria, (for such I shall call febrific exhalations,) find its way into the system? Some have supposed that it is admitted by every accessible surface. Others have contended that it affects the system through the stomach: and others, that it acts on the nervous system through the olfactories;† others, that it is absorbed by the skin;‡ and a still greater number that it is inhaled by the lungs into the circulation. There is no positive evidence, however, to establish any one of these theories. The suggestion that the stomach was the channel, arose from the fact, that when malaria produces malignant yellow fever, it affects the stomach, producing vomiting of malœna; hence many physicians have advised persons who are exposed to malaria, to chew substances, and not swallow their saliva. Among these was the late Dr. MILLER of New York, who afterwards entertained the belief that the lungs are the chief if not the only channels of admission. It can hardly be supposed that the saliva, if impregnated with malaria, could blend with the food in the stomach, while undergoing the process of digestion, and retain any putrid quality, since it is the nature of the gastric juice to correct putrefaction, and as to the strong bearing of yellow fever upon the stomach, we know from the experiments of GASPARD, MAGENDIE, and others, that water impregnated with putrid vegetable substances injected into the veins will produce the same gastric inflammation, the same vomiting of malœna as appears in yellow fever, which shows that the stomach is not the necessary, and probably from its antiseptic power, is in fact not the real organ of entrance. That the lungs and skin are the entrances is the more general belief, and is supported by better evidence. It was ascertained by BICHAT that fetor from putrid animal matter gained admittance through the skin. Having discovered that the flatus from his bowels acquired the smell of the air of his dissecting room, he respired for some hours through a tube which led into the open air, while he remained in a room containing highly putrid matter. The same effect was produced on the flatus, as when he respired the air of the room, and the same effect was produced by respiring the air of *the room* through a tube while he remained some hours in a pure atmosphere. These are offered as analogical proofs only, and even as such they are very imperfect, for the odour itself, as we have before observed, is not the malaria or febrific principle, and it is here an animal, not a vegetable fetor, that Bichat absorbed into his circulation from the lungs and skin.

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* See also p. 73 and 75.

† Rousseau.

‡ Brochi.

What are the diseases produced by malaria?—This subject has received the particular attention of Dr. Macculloch, in his invaluable work on malaria. Few people in this country are aware of the multiplied and varied forms of disease generated by this noxious principle. It is believed by this author, and admitted by some others, who possess the best means of information, that nearly half the diseases which visit the human race proceed from this cause. Dr. Macculloch enumerates the following—intermittent and remittent, both simple and malignant, and nervous fever; dysentery and cholera; dropsy, œdema, obstructions of the liver and spleen; neuralgia, and particularly that form of the tic doloureux, to which he would perhaps add, (Dr. Cooper thinks,) the Dengue of Charleston and Havana. He is in some doubt as to scrofula and goitre, hebetude of intellect and general lassitude, rickets, hernia, rheumatism, sciatica, tooth-ache, asthma, peripneumony, dyspepsia, palsy, phthisis, and chlorosis. But most of these are certainly produced by other causes, and some of them are probably not entitled to a place in the list. The subject proposed for this dissertation embraces only fever, and under this head may be ranged as the offspring of malaria, the various kinds of intermittent, remittent, yellow fever, and a great proportion of the autumnal continued fevers of New England, whether inflammatory or typhoid. The yellow fever, as we shall attempt to show, may proceed from other causes than vegetable decomposition, as also typhus gravior or putrid fever, whilst typhus mitior is oftentimes the consequence of fatigue and other debilitating causes. A minute examination of the localities of this last disease in New England, will discover it to be more endemic around factories, and on the shores of our rivers that have been dammed, and produced marshes, than elsewhere.

To the above list may probably be added some cases of dysenteric fever and cholera morbus. This list of fevers bring in their train many chronic affections, such as visceral complaints, that may partake more or less of the nature of fever.

There is much reason to believe that epidemic pneumonia, as it prevailed in the winter of 1812 and 13, in the army and navy on the frontiers, originated in the malaria of that section of country, imbibed into the system during the summer and autumn. The soldiers and sailors arrived on the lines at Sacket's Harbour, Buffalo, and along the shores of Lake Erie, late in the summer, and in the beginning of autumn, and were encamped in places where the inhabitants had suffered much with intermittent and remittent fevers. The accession of cold arrested the progress of vegetable decomposition, and of course the amount of malaria, whilst at the same time it so far braced the system of these men as to lessen the tendency to develope the train of symptoms that constitute a regular intermittent or remittent fever, though it produced a strong predisposition to them. This predisposition continued latent in the system, till roused into action by exciting causes, the principal of which was great and sudden exposures to cold, to which these men were subjected.* Nor does this opinion concerning the cause of such an epidemic stand alone.

Dr. HUGH WILLIAMSON, speaking of the intermittents of North Carolina,† says—

> "They disappear as the cold weather sets in, but they are frequently succeeded by fevers of a different type, that are more fatal. Those fevers of the colder season are commonly attended by partial inflammation, whence they are denominated pleurisies of the *eye*, or of the *head*, at other times they affect the *side*. In those several forms they are equally dangerous. *** It appears *chiefly*, perhaps *only*, in those places where people are subject to intermittent fevers, in low sunken grounds, and along the banks of rivers."

Another paper, by Dr. G. PILSON,‡ gives the same views. After speaking of the prevalency of bilious fevers in the summer, he adds,

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* The well known tendency of organs below the diaphragm to take on diseased action in the summer season, and to suffer from malaria in the form of cholera, dysenteria, and black vomit, is not greater than the tendency of those above the diaphragm to participate strongly and intimately in fevers of the winter season in the form of catarrhs and pleurisies and pneumonias, and this tendency gave a pneumonic character to the fevers in question, caused by malaria during the first autumnal months, (and which lurked in the system till the extreme cold acted as an exciting cause in developing them, and in giving them a determination to the lungs,) and acquired for them the name and character of peripneumony. The typhoid symptoms attending the disease in most places, which caused many observers to name it typhoid-peripneumony, tend to distinguish this from the common pneumonia of New England, and to refer it to the causes we have mentioned.

† Med. Repos. Vol. II. p. 156.

‡ Med. Repos. Vol. V. p. 137.

"that in February, March and April, a fever proved very mortal in town and country. Some physicians called it bilious peripneumony." There is some ground therefore for the opinion I have advanced, that epidemic pneumonia, when it succeeds to a sickly season in malaria districts, may be classed among the above fevers, which are more unequivocally ascribable to vegetable decomposition.

II. *The Effect of Animal Decomposition upon the Human Body.*—If medical men have generally agreed in opinion respecting the febrific nature of exhalations from decomposing vegetables, it is far otherwise in respect to those emanating from animal substances. There are probably at this time a majority of the best informed part of the profession who regard animal decomposition as innoxious in its effects, or at any rate as not productive of fever of any kind; and this opinion is now prevailing with the profession both in Europe and America. This is owing in no small degree to the distinguished rank and talents of several individuals who imbibed the opinion, and maintained it publicly, and with great zeal and ability, in works on fever, and in many of the periodicals of the present day. At the head of these may be named Dr. BANCROFT, who, though not the first in declaring that animal putrefaction has no febrific qualities, has taken more pains to establish such a belief than any other individual. The other gentlemen I shall mention, are two distinguished professors, viz. Drs. CHAPMAN and WARREN of Philadelphia and Boston, who, to the many facts adduced by Bancroft as proofs of this doctrine, have added several corresponding ones from their own observation. The public teachers of medicine in our medical schools have likewise, in most instances, supported the same opinions. Such distinguished leaders in support of any doctrine, will naturally draw numerous advocates into their ranks, and hence we find the opinions of these gentlemen pervading the profession generally.

In the early ages of medicine, the opinions respecting the febrific nature of decomposing substances, was the reverse of what we have stated it to be at present. Identifying the morbific character of putrescent substances with their sensible odour, they regarded their pernicious effects upon the constitution as proportioned to their offensiveness to the olfactories. "The Egyptians, Jews, Greeks, and Romans, were careful to dispose of their dead by burning, or by burying them far without the walls of their cities;" and their armies were cautioned against encamping long near a field of battle, lest the putrefying bodies of the slain should generate pestilential diseases. The same belief continues to prevail even in modern Europe. In France and Italy edicts were issued from time to time, by both secular and ecclesiastical authorities, from the eighth to the eighteenth century, against interments in churches and cities—and it is probable, that but for the writings of Dr. Bancroft and others, the same belief would have continued to this time. As the subject is interesting to health and life, it is time that the opinions of Dr. Bancroft and his disciples, as well as the facts on which they are grounded, should be carefully examined, and collated with other facts that will tend either to confirm or refute them. The question proposed for this essay presents an opportunity for doing this, and with the deference due to the elevated rank and distinguished talents of the gentlemen we have alluded to, a feeble attempt is here made to canvass the evidence on both sides of the question.

The reasons urged in support of the innoxious, or non-febrific nature of animal decomposition, are *first*, That the number of instances wherein fever has been actually ascribed to such a cause, by those who believe in its power to produce it, is very small, and the cases are not well attested. *Second*, That when the cause has existed in greatest abundance, and was therefore most likely to produce fever, this has not occurred.

Let us now inquire what are the kinds of fever that have been attributed to this cause? Taking the nosological arrangement of Dr. Good, we may arrange idiopathic fevers under the following heads:—1st. Intermittent. 2d. Bilious remittent, simple and malignant; the last of which includes yellow fever. 3d. Hectic common inflammatory fever. 4th. Typhus gravior. 5th. Typhus mitior. 6th. Synochus. From this list we are justified by the nature of their known causes, by the local circumstances of places where they occur, as well as by their general character, in dropping all except yellow fever and typhus gravior. Most, if not all practitioners, will concur in the opinion, that the other kinds have rarely, if ever been attributed to animal decomposition. Alibert remarks, that intense application to dissections has in some instances caused malignant intermittents in Paris. But I have witnessed no such effect there, nor elsewhere, whilst many physicians of the first respectability, who have passed years in such employments, deny that such fever has, in any instance within their knowledge, been ascribable to such a cause.

The two fevers just mentioned have been variously named—typhus gravior being termed the hospital, jail, or ship fever, and by some malignant typhus or putrid fever: the other has been called typhus icterodes—malignant bilious remittent, but more commonly yellow fever. Those who believe that vegetable decomposition alone produces fever, (leaving contagionists out of the question,) ascribe both kinds to this cause alone, and those who believe in the febrific qualities of animal as well as vegetable decomposition, attribute yellow and putrid fevers to each of these agents, or to both combined, under the name of vegeto-animal putrefaction.

To the above causes of these two fevers may be added that of contagion, which is strenuously maintained by some as the most frequent cause, and is as warmly opposed by others. But as the question of contagion is foreign to our present investigation, and would require a volume to support or refute it, we here take leave of it, and return to the question. *If yellow and putrid fever can be produced by animal decomposition, why are there not more and better attested cases to prove it?*

In answering this question, we are to keep in mind the circumstances, which we have already considered, which tend to give efficacy to vegetable decomposition as a cause of these fevers—they are intense heat, moisture, and abundance of decomposing materials. Now, a careful examination of the two cases will show that these three circumstances occur often, in respect to vegetable matter, and but very rarely in respect to animal matter.

In the first place, in respect to heat and moisture, animal matter is rarely found like vegetables in suitable relation to them. It is not abundant like vegetables upon marshes, where the sun can act upon a broadly extended surface of it, and that too while in a constantly moist state. When exposed to the degree of heat that will elicit the cause of such fevers from vegetables, animal matter soon parts with its own moisture by evaporation, and becomes perfectly dried. The jerked beef prepared for commerce under the tropical sun of South America is a proof of this fact. Every anatomist knows that his preparations can be preserved in midsummer if hung in a draught of air. The human bodies preserved for centuries in the cemetery near Palermo, were secured from putrefaction by heat, as are the bodies of those who fall in the deserts of Africa.

Where, however, a carcass is not placed under such favourable circumstances for desiccation, we know that it can exist in a putrid state but for a comparatively short space of time. The law imposed upon animals, "eat or be eaten," is imperative, and we know, without referring to scripture, that "where the carcass is, there will the eagles be gathered together." Carnivorous animals, large or small, are always at hand to consume every species of carrion.

One of the signs of approaching malignant fevers, is increasing swarms of flies, and of other insects, which, whether they have just sprung from putrid matter that has escaped human observation, which is to generate the disease, or are provided for the purpose of removing such matter, we know that they are present to consume putrid animal matter.

Add to this, that in all populous places where such fevers spread, the police is always peculiarly observing of dead animal substances. Guided chiefly by the impressions made upon their senses, the peculiar offensiveness of effluvia from putrid animal substances, as well as the loathsome sight of them, leads to greater precautionary measures. A dead cat in the street is removed and buried, whilst putrid vegetable matter remains collected around the walls of buildings, and putrid coffee is thrown into the docks. A dead rat concealed in a dwelling, will extremely annoy the inmates till every pains is taken for its removal, or will drive them to some other part of the dwelling that is less scented, whilst putrid potatoes, turnips, and cabbages in the cellar, of an hundred times the bulk, are often entirely disregarded. The crew of a ship in sickly ports in hot seasons, will, if left to their own inclination, sleep on deck, in an atmosphere loaded with morbific vegetable exhalations, whilst a single putrid rat, or even mouse, concealed in the cabin or forecastle, would cause a thorough purification of the apartment. The shores of rivers and streamlets, bordered by marshes, are often visited in a summer's evening with delight and temporary refreshment, whilst the stench of a slaughter-house, in the neighbourhood of a city, though containing scarcely a visible portion of decomposing animal matter, is turned from with disgust. With such precautionary measures in the one case, and neglect of them in the other, because the senses are differently affected, can it any longer excite wonder that the fevers we have mentioned, supposing them producible by it, should so rarely proceed from animal decomposition, and yet so frequently from vegetable decomposition? Seeing too that the latter is so abundant about populous places, and requires only a long-continued heat, from 80 to 100°, to act upon it, whilst putrid animal matter is at such times, for the reasons we have mentioned, so rarely to be found.

Much has been said of the influence of city interments upon the public health, and those who hold to the innoxious nature of animal putrefaction, might refer me to burying grounds for sufficient quantities of decomposing bodies. It is not worth the time to examine the fine spun theories published by Dr. Pascalis, to show that "the fetid gases in a grave can permeate the superincumbent earth, and exhibit phosphorescent light hovering over the spot, and impregnating the atmosphere with morbific principles." Sufficient for the present discussion is the fact, that, when the yellow fever broke out in New York, from Coentis' slip,* and spread through the neighbourhood, its progress was immediately arrested by covering the putrid animal and vegetable materials from which it issued, with fresh earth. But because dead bodies when coverçd with earth, as in this case, and also as in graves, do not produce fever, are we to infer that such bodies would not produce fever if exposed to the open air?

But secondly. *When animal decomposition has existed in greatest abundance, it has failed to produce fever.*

Here we are met with the often-recited accounts of Bancroft, and others, respecting the mass of putrid animal matter exposed to the air in the exhumation at Paris and Dunkirk, and in dissecting rooms, and the putrid emanations from the burial ground at Seville. Let us examine them—first stating them in Dr. Bancroft's own words.

"Many writers of celebrity, and among them the great Lord Bacon," says Dr. Bancroft, "have thought that no effluvia were so infectious and pernicious to mankind, as those which issue from putrefying *human* bodies; and it is still believed, that, in their milder state, they may cause putrid fevers, and in their more concentrated state, a true pestilence. There are facts, however, on a large scale, which completely decide this question:—two of these deserve particular notice. The first relates to the exhumation made in the church-yard of St. Elvi, at Dunkirk, in the year 1783: and the other to those made three years afterwards, in the church-yard of the Saint Innocens, at Paris. As the undertakings and results were similar in both instances, I shall, to avoid repetition, here describe only the latter, which I have preferred, because the corpses here taken up were much more numerous than at Dunkirk, and probably constituted the greatest mass of putrefying animal matter, of which we have any accurate information. The church-yard of the Saint Innocens, at Paris, situated in one of the most populous quarters of the city, had been made the depository of so many bodies, that, although its area enclosed more than one thousand seven hundred square toises, or near two acres, yet the soil had been raised by them eight or ten feet higher than the level of the adjoining streets; and upon the most moderate calculation, considerably more than six hundred thousand bodies had been buried in it, during the last six centuries, previous to which date, it was already a very ancient burial ground. Numerous complaints having been made concerning the offensive smells, which arose from this spot, and sometimes penetrated into the adjoining houses; and the public mind being greatly alarmed, it was at last determined to forbid all future burials there, and to reduce so much of the superstratum as would reduce the surface to the level of the streets. This work was undertaken in 1786, under the superintendance of M. Thouret, a physician of eminence in Paris, and in two years he accomplished the removal of that superstratum, almost the whole of which was impregnated, or *infected*, as M. Thouret styles it, with the remains of carcasses, and of quantities of filth and ordure, thrown upon it from the adjoining houses."

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* Medical Recorder, Vol. VII. p. 468.

"'The exhumations,' says this gentleman, (in the narrative of them, which he published in the Journal de Physique for 1791, page 253,) 'were principally executed during the winter, but a considerable part of them was also carried on during the *greatest heats* of summer.

"'They were begun with every possible care, and with every known precaution, but they were afterwards continued, almost for the *whole* of the operations, without employing, it may be said, *any precaution whatever;* yet no danger manifested itself in the whole course of our labours—no accident occurred to disturb the public tranquillity.'"

The facts here recited from Bancroft to prove the innoxious nature of putrid animal matter, relating to the exhumations at Paris and Dunkirk, make a strong impression on the mind of one who merely glances at them. But a close examination of particulars will show, that if Dr. Bancroft has told the truth, he has not told the whole truth, but like a skilful advocate, rather than an impartial judge, he has suppressed important parts of the evidence, which if related, would prevent him from making out his case, and take away the support he intended to derive from them, to his favourite hypothesis.

In referring to these, and all other cases of animal decomposition, we are to bear in mind the circumstances we have already related of vegetable matter, as necessary to constitute it a cause of malignant, yellow, or putrid fever. And in the first place, in respect to heat. This it has been shown, must range above 60° of Fahrenheit for several days, in order to generate these fevers from vegetable decomposition. Now what was the temperature at the time the exhumations took place. "They were commenced at Paris in December, 1785, and continued till May, 1786—renewed again in the following December, and continued till February, and from the month of August 1787, to the month of October."[*] There were then only one or two months of the time in which malignant putrid, or yellow fevers, from even vegetable putrefaction, or any other cause are supposed to occur.

2d. As to quantity of matter, "six hundred thousand bodies," says Bancroft, giving an impression that an immense number were exposed at one time, when in truth they were removed as fast as uncovered.

3d. To give credibility to the account of such numbers being

[*] Dictionnaire des Sciences Medicales, art Exhumation, Vol. XIV. p. 196.

buried, he is obliged to admit that they were six centuries work, yet not to lose by this concession of great length of time they had lain, he takes care to add in a note, that ninety thousand, (and this I admit is sufficient for his purpose as to numbers,) were buried within thirty years. But he is cautiously silent as to the time of the last interments, and also as to the time that animal matter is supposed to retain its febrific qualities. Now what is the fact in respect to these particulars. In respect to the duration of the morbific principle, in decomposing animal bodies, MARET,* an eminent French writer, states three years as the time for complete decomposition, when the grave is four feet deep; and four years when it is six or seven.†

What says Fourcroy? This gentleman, who was employed for chemical purposes in the exhumation of St. Innocens, states, "three years as a term during which the septic poison must take place."‡ Speaking of this very exhumation, he remarks, (p. 142,) "we had a strong desire to satisfy ourselves, by experiment, what was the nature of the destructive air, or 'septic explosion,' emitted from corrupting bodies, but we had no opportunity, in consequence of there having been no burials there for three preceding years; the last deposit there being in 1782." Now the month of August 1787, was the time when "the bodies were removed in the hottest weather," as Bancroft relates it, which was five years after the last interment, and two years after morbific miasm, according to Maret and Fourcroy, had ceased to exist. Nor is it at all likely that the last interments, five years previous to said August, were specially reserved for this hot month, but most probably much older interments. There were, therefore, no bodies removed that were in a stage of decomposition favourable for producing febrile diseases, in *any* weather, however hot, even had the whole number been exposed to the air of mid-day at once.

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* Dictionnaire des Sciences Medicales, Vol. XIV. p. 192.

† M. Burdach, in his Physiology, (Leipsic, 1810,) states that the decomposition of dead bodies takes place at three periods. *The first is that of fermentation*, which lasts many months; then there is a tumefaction of the body, from the development of gaseous substances which escape with an extreme fetor. In the second, which continues from two to three years, the soft parts are converted into a brown or green pulp; the mass lessens, because it is in a great part volatilized and converted into carbonated hydrogen, sulphur, phosphorus, carbonic acid, ammonia, and vapour. During the third epoch, the gaseous products completely escape, and there remains a dark-coloured earthy matter.

I might here add the generally received opinion of Dr. Fordyce, that putrid animal matter, put in contact with recently dead animal matter, hastens the process of decomposition, and there was enough of putrid matter at all times in this yard to do this, whenever a recent body was interred.

‡ Pascalis, p. 150.

But "the bodies," says the report, "were in every stage of decomposition." This expression is, however, to be understood as qualified by the time, that is, they were in every stage of decomposition after more than three years interment, in which time the septic emanation is completed. And should circumstances of soil or manner of interment prevent putrid fermentation from taking place within that time, it is probable that the deleterious emanations are decomposed, and recombined in new and harmless forms.

Another fact, particularly worthy of notice; which Bancroft unfairly or ignorantly omits to mention, is—

> "The great number of torches and fires that lighted all parts of the cemetery and shed around a melancholy glare," and "the thick clouds of smoke that surrounded and covered the place of labour."*

Fires, and smoke have been found of great utility, especially in military service, as was proved on a large scale by Buonaparte, before Mantua; and in Africa, the experiment in a small way has proved successful.

> "Emigrants proceeding to Alabama and other southern regions, from the low countries of Carolina, find no injury from sleeping in the open air, as their custom at night is to build a large fire of logs, and lay themselves beside it, on some part of their baggage. The effect of fires in destroying malaria, is plain, if the fact of its existence depends upon the presence of moisture; for the moisture being evaporated by the heat, the poison is either dispersed with the vapour, or if separated from it, falls innoxious, and probably inert. It is on the same principle that smoking segars on the decks of ships is salutary. The heat and smoke keep a dry atmosphere about the uncovered face, and the air respired, being thus deprived of miasmata, is safe."

What then becomes of this formidable array of six hundred thousand bodies removed from the cemetery of St. Innocens, which occupies the front ground of the picture drawn up by Bancroft, and is copied verbatim in two of our public journals, in Boston and Philadelphia, by two of the first medical men in our country, and minutely repeated before classes, by almost every professor of theory and practice in our medical schools. 1st. They were removed as fast as they were uncovered. 2d. The exhumation took place at a season of the year when malignant fevers caused by malaria are known and believed by Bancroft not to exist, with the exception of two months, August and September, and in the night season too, when the degree of heat of *those* months is not sufficient to produce malaria. 3d. They were removed full two years after the time that an eminent chemist, who was present, states that they had ceased to be productive of morbific gas: and lastly, with such precautions and preservatives by fire and smoke, as would probably have disarmed the exhalations of their poison had there been any.

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* Dict. des Sciences Medicales, Vol. XIV. p. 187.

Another case of disinterment, quite as formidable, is given by Bancroft, which took place at Dunkirk in 1783, and which he declines relating, "because," he says, "the undertakings and results were similar in both instances, and he wished to avoid repetition." When did this take place? It was commenced on the 26th of February, and finished on the 16th of April,* a season in which no fevers from malaria, of either vegetable or animal origin are believed even by Bancroft to exist.

Now I appeal to the reader, I appeal to the candid part of the profession at large, whatever may be their opinion of the noxious or innoxious nature of animal decomposition, to decide if it was fair and candid in Dr. Bancroft, to shuffle the two reports of Paris and Dunkirk exhumations together, and turn up the face of one, and declare to the world that it is an exact representative of the other, when the most material point, the "*hottest weather*," is stated in the one case to have existed, and is italicised by him as a most material fact, and could not have existed in the other, the weather being cold, partly in winter.

Dr. Bancroft next goes on to say—

> "If this result from taking up nearly twenty thousand bodies in different stages of putrefaction be insufficient alone for my purpose, there is another equally conclusive in its nature and extent.
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> "It is well known that M. Berthe, Professor in the School of Medicine at Montpellier, and two of his colleagues in that University, were sent by the government of France, into Spain, to examine and report upon the nature of yellow fever, which had proved so fatal in several towns of Andalusia, in 1800. M. Berthe has published the report of the commission, of which he was a member, and in it has mentioned, that, being at Seville only a few months after the epidemic had ceased, he frequently visited the burying places just without the city, in which the victims of the fever had been interred; that in these excursions he was accompanied by the French consul at that city, and had occasion to converse much with the guards stationed at these places, and with the grave-diggers still employed in them, and he states, that besides these, many thousands of the inhabitants of Seville also came thither, some from curiosity, and others in processions, to testify their sorrow and respect for their departed friends. In one of these grounds, south-westward of the city, ten thousand bodies had been buried; in two others, seven or eight thousand; and in that of Triana about four thousand.

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* Dict. des Sciences Medicales, article Exhumation, Vol. XIV. p. 196.

"'The heats of the spring,' says M. Berthe, (which I need not observe are considerable at Seville,) 'were at this time beginning to be felt, and the ground of these burial places, being clayey, was already cracked into wide and deep crevices, through which a fetid odour was exhaled, the result of the decomposition which was going on among these heaps of bodies.'

"Filled with alarm at the calamities which might be produced by such masses of putrefaction, M. Berthe and his colleagues represented the supposed dangers to the Spanish government, and then went to Cadiz, where they found the churches more or less filled with putrid emanations from the same cause; but as they did not discover that these supposed fomites of infection were productive of any mischief, their fears concerning them seem at length to have subsided completely; for, in their reply to the president and members of the board of health, who had requested a statement of their opinions, they expressly declare their belief, that 'if the yellow fever could be produced by the effluvia arising from putrefying bodies, it was evident that such a misfortune must already have taken place, through the imperfect manner in which the tombs and vaults, pointed out by them, had been closed, a defect which they had observed even in the churches most frequented.' Thus it appears that the putrid emanations from the bodies of many thousand persons, who had recently died of the yellow fever, did not, and therefore could not produce that disorder.

"To the preceding facts I may add another, which is related by a man whose veracity is as little to be questioned as his exalted philanthropy—I mean John Howard, in his work on Lazarettos, page 25.

"'The governor at the French hospital at Smyrna, told me, (says Mr. Howard,) that in the last dreadful plague there, his house was rendered almost intolerable by an offensive scent, especially if he opened any of those windows which looked toward the great burying ground, where numbers were left every day unburied, but that it had no effect on the health of himself or his family. An opulent merchant in this city, adds he, likewise told me that he and his family had felt the same inconvenience without any bad consequences.'

"If the exhalations from piles of bodies destroyed by the plague itself, and corrupting in the open air, were thus incapable of generating the contagion either of fever or of plague, even during the prevalence of a pestilential constitution of the atmosphere, (if any state of the atmosphere ever deserved that title,) it may, I think, be safely affirmed that there are no circumstances under which putrid animal matter can be supposed ever to produce febrile contagion.

"I have now before me a great number of similar facts, well authenticated, but those which I have just stated, will probably suffice to convince most of my readers, that if putrefying animal matters are not completely harmless, they are at least innocent of the charge of producing *contagious fevers.*"

In respect to the mission of M. Berthe from France to Seville, Dr. Bancroft after giving the foregoing report, goes on to notice it thus. "The heats of the spring, says M. Berthe, *(which I need not observe are considerable at Seville,)* were at this time beginning to be felt, and the ground being clayey, was cracked into wide and deep crevices, through which a fetid odour was exhaled, the result of the decomposition which was going on among these heaps of bodies."

"*Thus it appears*," says Mr. Bancroft, "*that the putrid emanations from the bodies of many thousand persons who had recently died of yellow fever, did not, and therefore could not produce that disorder.*" The italicised lines are supplied by Dr. Bancroft himself, and serve to show his readiness to bend and qualify evidence to suit his purpose. "*The greatest heats of spring*, says Berthe," and who, let me ask, will pretend that the thermometer ranges at Seville so high as 80° in the spring for a succession of days, or that the yellow fever ever prevails there till the summer is far advanced. Yet, apprehending that the word spring would imply a moderate temperature, he gratuitously supplied a qualification to make the heat greater in the mind of the reader than it actually was, and such as is requisite to produce malignant fevers from malaria, which, as we have before stated, ranges during the prevalence of yellow fever at 80° and upwards.

Yes! "*greatest heats of summer*," which in the Paris exhumation Dr. B. thought of so much importance in his report that it made him italicise the words, but which in the Dunkirk case, that took place in cold weather, he though of no consequence to distinguish it from that of Paris, yet here he would fain make the impression that "*greatest heats of summer*," (or that degree which he elsewhere deems essential for the production of yellow fever,) occurred in the spring! And because these bodies "*did not produce yellow fever*," at a season of the year when such fever never exists from any cause, the gentleman concludes forthwith, and positively declares that they "*could not produce that disorder*" at any season.

As to the report of Mr. Howard respecting the governor at the French Hospital at Smyrna, and of the fetor in his house, we may observe, that the febrific principle was probably in a great measure excluded by keeping the windows closed. Dwellings in the neighbourhood of slaughter-houses in Brooklyn, are affected in the same manner as is the highway. But the smell is not, I repeat it, the febrific principle, nor is it to be understood as always proportioned to it. This story about Smyrna comes third-handed, and without any statement of the distance of the burying yard from the house, or of the temperature of the air.

In the appendix of Bancroft is a long account of the innoxious effects of dissections. But are these ever prosecuted in the heats of summer, when yellow fever prevails?

The account of an adipocire establishment near Bristol in England, is unaccompanied by any statement of the season of the year, or of the temperature of the atmosphere, or the number of persons employed or exposed to the effluvia, or of the amount of putrid animal matter existing at the same time. The same imperfection attends the accounts of the dead bodies washed on shore near Aboukir, the glue, soap, candle, catgut, and leather factories. I contend for no more in respect to heat, moisture, and abundance of materials, to give febric activity to animal decomposition, than is already conceded by Bancroft and others to be indispensable for the production of yellow fever from vegetable decomposition. When, therefore, the above instances cited by Bancroft, to which many others have been added by the Boston, Philadelphia, and Baltimore writers, when I say, these instances are accompanied with evidence that heat and moisture concurred at the same time, and in the same degree, as is admitted to be necessary for the production of yellow fever from vegetable matter, then, and not till then, is any of this negative kind of evidence admissible against the febrific power of animal decomposition. As well might one contend against the generally received doctrine that marsh miasm possesses febrific qualities, and, pointing to the swamps and marshes, both fresh and salt, of New England, demand why these do not annually produce fever.

"In regard," says Bancroft, "to the morbid effects supposed to result from the putrefaction of fish, they appear, so far at least as regards fever, to have had no existence." This assertion I shall have occasion to notice hereafter, and refute by positive testimony to the contrary. That the boiling of blubber should be harmless notwithstanding its offensive effluvia, is what might certainly be expected, considering the great power of fire as before stated on several authorities to destroy malaria.

The use of fish for *manure*, as herrings, alewives, &c. is adverted to by Bancroft, and also by the gentlemen before alluded to in Boston and Philadelphia. It should be borne in mind, however, that these fish are most of them buried, and that such of them as are above ground, are strewed over it, and from their small size are soon dried; they are not thrown in heaps in the manner that putrid coffee, potatoes, and cabbages, were, when *they* produced yellow fever, as appears from the several reports contained in the Medical Repository, and other publications. From those it seems that a sort of intestinal heat and fermentation in the centre of the mass is necessary to produce yellow fever. Now, the time required for this heat to generate in animal or vegetable substances from the evolution of new gases, is many days in the human body buried many months, and almost as many weeks above ground, whilst two or three days are sufficient to desiccate small fish strewed upon the ground, and prevent the fermentative process from taking place, although they may evolve disagreeable effluvia as stated to be the case by the Boston and Philadelphia writers, of those strewed upon the grounds near Newport, and on the banks of the Delaware.

Thus, I have examined nearly all the facts related by Bancroft, and the other gentlemen alluded to, and have shown that there were circumstances connected with each that weaken its force, and in almost every instance destroy it altogether, as a proof against the febrific power of animal decomposition.

One other substance remains to be noticed, to which these gentlemen attach much importance, as proving that animal decomposition is not febrific. It is human ordure. "Putrid human excrement," say they, "seems equally incapable of producing fever," and then they repeat the statements of night-men. But this substance, let it be borne in mind, if it proves any thing in the case, proves too much. Excrements are a part of the result of a process performed upon both vegetable and animal materials. If the fact were established that it did produce fever, and I were to offer it against the opinions of these gentlemen, they would turn upon me, and say that it is the vegetable part of the materials forming the excrement that causes the fever, for they all maintain, that putrid vegetables are febrific. But admitting, for the sake of the argument, that the excrement is the result of animal food alone, it is no longer the same animal matter as regards its susceptibility of febrific putrefaction. It has undergone the digestive process, has been imbued with, and acted upon, by the gastric juice, which we know has a strong influence upon the putrefactive process; it even corrects this, and in some animals subdues it to an astonishing degree, the most putrid meats being rendered perfectly sweet by it in their stomachs. Nor is it consistent with our views of the wisely ordered economy of nature, to suppose that man should, by an indispensable process of his system, be constantly producing a substance that could act as the bane of life.

The "atrocious smell" they advert to, as emanating from such substances, is not, let it again be repeated, the cause of fever: besides, if it were the cause, this is as offensive in the form of flatus within the bowels, as when exhaled from the substance in a privy, and is in more immediate contact with the absorbents. In a word, human excrements possess the properties common to neither animal nor vegetable matter; it is a substance *sui generis*,* and its emanations cannot be fairly referred to, to support the doctrine that either animal or vegetable putrefaction possesses febrific properties.

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* In proof of this it may be observed, that where the whole food is exclusively vegetable, as is that of the ox kind, the emanations from the excrements are perfectly harmless. I challenge any one to adduce a well authenticated case of yellow fever caused exclusively by barn or stable manure, and yet nothing is more common than heaps of it round every farm yard throughout the middle

The Boston and Philadelphia writers attach great importance to the exhumation of St. Innocens, as settling the question that animal decomposition never causes fever. In this they choose to "*go for the whole*," whilst Bancroft, from whom they have copied this account of St. Innocens, and almost every other fact they advance, warily shields himself by a saving clause in his conclusion, which they have not seen fit to avail themselves of. The clause is this. "If putrefying animal matters are not completely harmless, they are at least innocent of the charge of producing *contagious fevers*." Contagion was his subject of discussion, and he does not positively deny that fevers which are non-contagious, (and such he regards yellow fever,) can be produced by animal decomposition.

The Boston writer, with a spirit of candour that marks his whole paper, concludes it by saying, "Should a difference of opinion exist on any important point, I hope these remarks will have the effect to call it forth." I therefore respectfully ask leave to dissent from his conclusion in one particular, even were the facts sound and incontrovertible from which he draws it. The case, (says he,) of the cemetery St. Innocens has been considered to be conclusive of the non-febrific nature of animal decomposition, if no positive and satisfactory facts can be adduced on the opposite side. Now, I maintain that this cemetery case, and all the other facts cited, amount to no more than negative evidence, and that unless the gentleman can show that they combine every circumstance that could favour the operation of animal putridity in causing fever, which would be next to impossible, the evidence amounts only to probability, and is not "*conclusive*," even if no facts were adduced on the opposite side to prove that it does cause fever.*

One well established fact, however, proving beyond doubt that animal decomposition possesses febrific properties, is sufficient to controvert all the negative evidence to the contrary, which the gentlemen have adduced. It is now my purpose to offer many such facts.

1. The Rev. Henry Channing in a letter to Dr. Mitchell, see

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and northern states, and under circumstances too of heat, moisture, and abundance of the mass, the most favourable for engendering malaria. Why then expect it from human excrements?

* The Philadelphia writer expresses himself to the same effect as the Boston writer, in the following words. "It follows from the preceding series of facts, that animal putrefaction alone cannot be assigned as an epidemic cause, or scarcely indeed as a morbid agent."

Medical Repository, Vol. II. p. 402, states it as his own opinion, and that of Dr. COIT, Dr. LEE, Mr. WOODMAN, and Mr. HOLT, that the yellow fever which prevailed in New London, in 1798, was caused by putrid fish. Of the whole number of cases of fever, (246,) "two hundred and thirty one were clearly traced to the spot where the sickness commenced, that is, the persons were conversant, or had been in that part of the city a few days before they were seized," and "scarcely a single person escaped the disorder who resided in that part of the city.

> "It appears," says Mr. C. "that there was a large quantity of dried fish, in a bad state, in four or five stores, within twenty or thirty rods of each other, and all in the limits referred to. These fish were taken in the Straits of Bellisle, which being a high northern latitude, they were cured with a much less quantity of salt than usual. They were brought to this port in the autumn of 1797. The heat of the summer having been very great, many of these fish were found to be in a moist, slimy state, early in August last. From a quantity lying in bulk, in a store occupied by Mr. Jones, (who fell a victim to the epidemic,) a quantity of green and yellow purulent matter ran upon the floor. It was thought by the owners, that if they were spread in the sun, in the open air, the fish might be preserved; which was done, extending them a considerable distance in the street and wharves. While thus exposed to the excessive heat of the sun, with light winds, the effluvia in the neighbourhood were very offensive."

Mr. Channing states that there was not even a shadow of ground to suppose that the disease was imported—and the situation of New London is elevated "with scarcely any low lands to generate marsh miasmata." The harbour is spacious, near the sea, from which refreshing breezes are experienced during the summer. The heat of the summer of 1798, it may be mentioned, exceeded both in intensity and duration, what had been known within the memory of the oldest inhabitants.*

2. Dr. SAMUEL OSBORN relates in the Medical Repository, Vol. I. p. 210, a case of yellow fever, caused by exposure to the exhalations of putrid beef. The patient, a soldier, was excused from duty on account of a violent and obstinate gonorrhœa; and a lodging was assigned him in a house without the garrison, on Governor's Island. In a few days, he was attacked with symptoms of yellow fever, and as his physician observed, in his visits, a very offensive smell in the house, he ordered the cellar under the patient's bed to be examined; where were found three barrels of beef in a state of extreme putrefaction. "So exceedingly offensive was the smell emitted from this mass of animal putrefaction, that the soldiers who were employed to re-

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* See also a second letter from Mr. Channing, Vol. II. p. 405.

move it, were several times forced to desist, for the purpose of breathing fresh air, before they could accomplish their design." On the removal of the beef, the patient gradually mended.

3. Dr. Coffin in a pamphlet on the danger of interments, states that—

"A man was killed by accident in Orange, New Hampshire. In about ten weeks after the burial, the body was taken up to be deposited in a different place. Twenty persons were present at the disinterment of the corpse, which was in a putrid state. Thirteen of these persons fell sick of fever not long after their exposure to the putrid gases from the dead body, and several of them died."

"There was no other assignable cause for this fever, than these noxious gases from the dead body, the season and the place being otherwise quite healthy."*

4. In Johnson's *Medico-Chirurgical Review*, Vol. II. N. S. p. 202, there is related an instance of fever of the putrid kind, and resembling plague, produced from a putrid human body.

"An American merchant ship was lying at anchor in Whampoa Roads, sixteen miles from Canton. One of her crew died of dysentery; he was taken on shore to be buried. No disease of any kind had occurred in the ship from her departure from America, till her arrival in the river Tigris. Four men accompanied the corpse, and two of them began to dig a grave, unfortunately, they lit upon a spot where a human body had been buried about two or three months previously, (as was afterwards ascertained.) The instant the spade went through the lid of the coffin, a most dreadful effluvium issued forth, and the two men fell down nearly lifeless.

"It was with the greatest difficulty their companions could approach near enough to drag them from the spot, and fill up the place with earth. The two men now recovered a little, and with assistance reached the boat, and returned on board. On the succeeding morning they were visited by an assistant-surgeon from an English Indiaman in the roads, who reported the following symptoms, viz. very acute head-ache, with a sense of giddiness and dimness of sight, (which had existed more or less from the moment of opening the grave;) eyes of a peculiar muddy appearance, resembling that generally observed in cases of Indian cholera; oppression about the præcordia; dull heavy pain in the regions of the heart and liver, with slight palpitation at times, and fluttering pulse; sense of extreme debility, with occasional convulsive or spasmodic twitchings of the muscles of the lower extremities; nausea; slight diarrhœa; rigors, succeeded by flushings of the face, neck, breast, and upper extremities; tongue white, and much loaded; pulse from 110 to 120, weak and irregular; urine scanty and high-coloured; skin sometimes dry, sometimes covered with a clammy sweat. On the fourth day from the commencement of the attack, numerous petechiæ appeared over the breasts and arms; and in one of the patients a large bubo formed in the right groin, and another in the axilla of

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* I regret that the temperature of the weather is not given, though I have understood that it was hot.

> the same side, which speedily ran to suppuration. To one the disease proved fatal on the evening of the fourth day; to the other, on the morning of the fifth. For two days previously to death the gums bled freely. The symptoms were so completely similar in both the cases, that it is needless to repeat them here."

The post mortem appearances evinced a highly putrid state of the system.*

One of the two not immediately engaged in digging the grave, was attacked on the eighth day from his being on shore with "violent retching, and labouring under all the symptoms of the former patients in an aggravated degree. Was bled twenty-five ounces, and recovered."

5. Mr. Samuel Russel, of New York, in a letter† to Dr. Mitchill, states, that two hundred barrels of herring, in a considerably offensive condition, were shipped, in July, 1801, to St. Croix, and the market being bad, were taken to Kingston, Jamaica, where they were placed in store.

> "By this time the fish were discovered to be fast spoiling, and advancing rapidly through the putrefactive process. The master of the store and his clerk lived and slept in a room directly above that in which the fish were now lying and corrupting. *They both were invaded by yellow fever.*"

6. The yellow fever which prevailed in Newburyport, in 1796, appears to have been caused by putrid fish.

> "Respecting the origin of the disease," says Dr. Coffin, "there have been but two opinions. Some have supposed it was generated here; others, that it was imported from the West Indies in a vessel which arrived in May. The captain's account is, that about twelve days before his arrival here two of his men died on board of a putrid fever, after which he immediately cleansed the vessel by washing it with vinegar, smoking it with tar, and scrubbing the cabin and steerage floors. He threw over the clothes which the sick had worn, and their bedding. Their other clothes were locked up in their chests, and afterwards sent home to their friends in a neighbouring town, without communicating any infection: the rest of the crew escaped the disease. Here it may be remarked, that if the vessel, on her arrival, had been stationed at some other part of the harbour, it would have been conspicuous, whether it brought the fever or not. But not far from the wharf at which it was unloaded, a great quantity of fish had been dressed for the West Indies, and the entrails left exposed to the air. The weather being uncommonly moist and warm, the exhalation was very offensive to the neighbourhood. In one of the houses nearest the fish offal, the three first persons were seized with the disease; and within twenty or thirty rods the greater number of its victims lived. The majority of those who recovered lived in other parts of the town. Most, if not all, who had it at a distance, had frequented the infected neighbourhood, but did not communicate

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* See Med. Chir. Rev. Vol. II. p. 203. † Med. Repos. Vol. V. 1822, p. 345.

the infection to their attendants. These are the principal facts from which the fever's origin must be determined."*

7. "In the summer of the year 1783, M. Faure, a merchant of Narbonne, in Lower Languedoc in France, bought a house which had previously been occupied as an anatomical hall; and, being desirous of having a cave dug in the cellar, employed three men to do it. In digging, they came to the wall of a necessary, which had been the common receptacle of the remains of human subjects, and which was covered in to prevent detection; and, on extracting a few of the stones with their picks, an offensive, putrid matter rushed through the apetture, and suffocated them. M. Faure, going to see the workmen, descended but two or three steps before he fell senseless. The neighbouring people, perceiving the putrid smell, went to the house, and of nine that entered to bring out the sufferers, six died. M. Faure was removed, but died in four days, and the unfortunate labourers survived their release but a day or two.

"In the mean time, the smell increased to such a degree, as to create a pestilence, and the neighbours were obliged to remove; but a great many of them died. The Mayor of the city being informed of the circumstance, had the cellar filled up, and the house closed. But the malignant effluvia had pervaded the town, and a great many died of the *pestis*. The disease was attended with the black vomit, but not communicated by contagion."†

8. In Washington, a small village, containing about four hundred inhabitants, situated six miles from Natchez, and occupying a high situation, remote from any swampy ground, the yellow fever prevailed in 1828, and was unquestionably occasioned by a quantity of putrid fish and hams lodged in a grocer's store. A minute and faithful history of the fever is given in the Medical Recorder for April, 1826, by a distinguished physician, Dr. S. A. Cartwright, on whose mind there appears to have existed not the shadow of a doubt that it was solely referrible to the above-mentioned cause. The great length of his paper prevents its insertion in this essay.

9. Dr. Caldwell, in his appendix to Alibert, p. 61, traces the yellow fever of one season in Philadelphia, to heaps of decaying oyster remains. The account is drawn out at too great length for insertion, but the proofs are satisfactory to my mind.

10. In Dieppe, a city in France, a pestilential disease was produced in 1776, by putrid oysters in the shell. Cited by the foregoing author from "observations on the epidemic diseases, and constitution of France."

11. "It appears, from a statement by Dr. Dick, published in the Medical Repository of New York, that the pestilential fever which prevailed in Alexandria, in 1803, originated from the septic exhalations thrown into the atmosphere by a large bed of putrid oyster-shells."

12. Dr. Rand, in his history of the yellow fever in Boston, relates the case of a person who was employed to remove some hides in a very putrid state, upon a point of land opposite Wheeler's wharf, and who sickened and died on the third day. This history of Dr. Rand describes the masses of animal matter in a putrid state on Fort-hill, Stoddard's wharf, &c. and the cases of the fever that

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* Med. Repos. Vol. I. p. 504.

† Med. Repos. Vol. IV. p. 245.

originated from them.* "Three lads, apprentices to Mr. Manston the cooper, by repacking some of this beef, were seized with the fever and died."

Now, had the same number of persons been employed in moving the coffee on the wharf in Philadelphia, and all shared the same fate, is it likely that such a difference of opinion would have existed respecting the origin of the fever in that city in 1793?

13. A case is reported by Dr. Cogswell, of Hartford, of a man who was attacked with putrid fever, by passing a night in a boat containing barrels of putrid and highly offensive beef.†

14. "In 1748, at New York, a great quantity of salt beef, partly putrid, having been purchased by poor persons, took it to their chambers, and they were almost all victims of the yellow fever."‡

15. Ship General Green sailed from Newport to the West Indies, and a great part of her crew were attacked with malignant fever. She had on board putrid fish and beef, that was so offensive as to require being thrown overboard. Here I would observe, that, although the animal putrefaction was the most apparent cause, yet some may feel disposed to cavil, and attribute it to vegetable putrefaction in the vessel.

16. In the month of July, 17—, a very corpulent lady died at ——. Before her death she begged as a particular favour, to be buried in the parochial church. She had died on the Wednesday, and on the following Saturday was buried according to her desire. The weather at the time was very hot, and a great drought had prevailed. The succeeding Sunday, a week after the lady had been buried, the protestant clergyman had a very full congregation, upwards of nine hundred persons attending, that being the day for administering the holy sacrament.

It is the custom in Germany, that when people wish to receive the sacrament, they neither eat or drink until the ceremony is over. The clergyman consecrated the bread and wine, which is uncovered during the ceremony. There were about one hundred and eighty communicants. A quarter of an hour after the ceremony, before they had quitted the church, more than sixty of the communicants were taken ill: several died in the most violent agonies; others of a more vigorous constitution survived by the help of medical assistance; a most violent consternation prevailed among the whole congregation and throughout the town. It was concluded that the wine had been poisoned. The sacristy, and several others belonging to the vestry, were put in irons. The persons accused underwent very great hardships: during the space of a week they were confined in a dungeon, and some of them were put to the torture, but they persisted in their innocence.

On the Sunday following, the magistrate ordered that a chalice of wine uncovered should be placed, for the space of one hour, upon the altar; the hour had scarcely elapsed, when they beheld the wine filled with myriads of insects; by tracing whence they came, it was perceived, by the rays of the sun, that they issued from the grave of the lady who had been buried the preceding fortnight. The people not belonging to the vestry were dismissed, and four men were employed to open the vault and the coffin; in doing this, two of them dropped down and expired on the spot, the other two were only saved by the utmost exertions of medical talents. It is beyond the power of words to describe the horrid appearance of the corpse when the coffin was opened. The whole was an entire mass of putrefaction; and it was now clearly perceived that the numerous insects, together with the effluvia which had issued from the body, had caused the pestilential infection which was a week before attributed to poison. It is but justice to add, that on this discovery, the accused persons were liberated, and every atonement made by the magistrates and clergyman for their misguided conduct.*

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* Med. Repository, Vol. II. † See Webster on Plague and Pestilence.

‡ Dic. des Sciences Medicales, Vol. XXX. page 548; extracted from Valentin, p. 121 to 124.

17. "The sepulchral vaults of the principal church of Dijon, having been entirely filled, in consequence of the winter of 1773, which froze the ground of the common cemetery to such a depth that it could not be opened, orders were given to remove the bodies from these subterraneous repositories. Several attempts were made to purify the air by the detonation of nitre, by fumigations of vinegar, by burning a variety of perfumes, storax, benzoin, &c. &c. and by sprinkling the pavement with a large quantity of *anti-pestilential* vinegar, known by the name of *vinegar of the four thieves.* The odour of the putrid effluvia was merely masked for a moment by these operations, and soon re-appeared with its former activity, spreading to the neighbourhood, where the symptoms of a contagious fever began to appear. At this period I was consulted on the means of destroying the source of the distemper."†

The above instances are sufficient in my mind to establish the fact that animal decomposition in particular stages of it, and under certain circumstances, will produce certain fevers, viz. the yellow and the putrid. Omitting further evidence in my possession, I shall now content myself with adverting in a few words to what seem to be necessary conditions to give activity to the process.

1. It must be in certain stages of the process, viz. the fermentative, as Burdach of Leipsic, before mentioned, terms it; that is to say, from two or three weeks to several months, varying no doubt according to circumstances of situation and state of the materials. The above instances confirm this opinion.

2. The heat must range at from not far below 80 to 100 degrees, if the materials are uncovered, though in a grave it must necessarily be less.

3. The mass must be large and moist.

4. I may remark that it seems to be immaterial whether the substance be free from salt, or imperfectly cured by it, though the evidence

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* Gazette of Health, No. I. p. 2.

† Treatise on the Means of Purifying Infected Air, &c. By L. B. Guyton de Morveau, p. 25.

from the foregoing cases, and from those that are to be added in the appendix, rather goes to prove that a little salt hastens the process, and this accords with the effects of partially salted vegetables as salt marshes; and it is remarked by Webster and M. Brown, that fresh meat in water slightly salted, will corrupt sooner than in perfectly fresh water.

Let it be recollected as a matter of some weight, that the negative evidence of Dr. Bancroft and others, viz. the cemetery of St. Innocens, Dunkirk, &c. were adduced by a man who aimed at a victory over what are called contagionists, and in doing so, to establish by evidence the innoxious nature of animal putrefaction, in which he has endeavoured to make the most of the facts his industry could collect, and who has evidently perverted them, (in some particulars at least,) to suit his purpose; whilst the instances I have adduced as proof against him are from the pens of men who had no favourite hypothesis to establish, nor any motive to deviate from a plain statement of facts. There does appear then sufficient evidence for the conclusion, that yellow and putrid fevers do result from animal decomposition, though for reasons before stated, viz. scarcity of materials in the proper season of the year, and other necessary circumstances, they are comparatively of rare occurrence.

To the evidence drawn from cases, I will add the result of the experiments of Gaspard* and Majendie, made to show the effects of putrid animal and vegetable substances introduced into the veins. Supposing vapour to be the medium by which the febrific agent is evolved, how does it affect the system? It is first inhaled into the lungs; these, according to Majendie, expose a surface at each inspiration, "several times greater than that of the human body;" thus, admitted, it enters the blood, for odours are found by experiments to enter the circulation at a single inspiration. Now Gaspard proves that putrescent animal substances injected into the blood produce prostration of strength, dysentery, inflammation of the stomach and intestines. Water impregnated with vegetable putrefaction, produced similar though less violent symptoms. M. Majendie has also produced in the same manner diseases resembling those which result from vegetable malaria. He ascertained that infusions of different kinds of putrid animal substances were followed by different effects, "that water in which putrid fish had been soaked," (mark the coincidence with the cases I have cited of yellow fever produced by fish,) "produced when injected into the blood, symptoms resembling yellow fever."

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* Gaspard, as given in page 24 to 37 of Vol. I. No. I. Monthly Journal of Medicine.

III. *The comparative influence of both animal and vegetable decomposition as a cause of fever.*—I will not undertake to say what would be the proportion of cases of fever, if decomposing animal matter were as abundant in hot weather as vegetable matter is; nor will I say that it would then cause all the kinds of fever that I have shown in the first part of this essay do proceed from vegetable malaria. Perhaps it is the adynamic kind of fevers only, as malignant, yellow and putrid, that can be produced by it. If so, there would then be a vast disproportion in the number and kinds of fevers that result from the two causes. As it is, taking into consideration the disparity as regards quantity of the two kinds of matter actually existing in a state of decomposition, I think that the cases I have shown authorizes the inference, that the febrific effects of animal and of vegetable decomposition, so far as regards putrid and yellow fever, are about equal.

Providence, R. I. August, 1830.

Art. VI. *Reports of Cases treated at the Baltimore Alms-house Infirmary.* By Thomas H. Wright, M. D. Physician to the Institution.

Case I.—*Dyspepsia—Hypertrophy of the Liver—Hepatization of the Lung—Entero-thoracic Tympanitis.*—David Hines, twenty-eight years of age, tall person, large frame, body and limbs emaciated, belly somewhat prominent, countenance lymphatic, was admitted into the Baltimore Alms-house, October 16th, 1829. He stated that he was a painter by trade, had been formerly well and strong, but fell into bad health about three months before, commencing with diarrhœa, to which pains of the belly were superadded, and the latter becoming almost constant, often violent, the diarrhœa also continuing, had worn him down to his present state.

Symptoms when admitted.—Countenance pale, without sallowness; no colour in the cheeks or lips; upper and lower limbs wasted; ankles somewhat swelled; belly round; body leucophlegmatic. Pulse frequent, moderately full, very soft; temperature of the surface low; tongue clean and blanched; fauces pallid; taste and appetite impaired. Epigastrium rather full, somewhat sore to pressure; sense of heat in the stomach, eructations, pyrosis, all increased after eating; no vomiting.

Right and left hypochondrium round, rather tense, no extra sensibility in either, no definable intumescence or induration, in the seat of the liver or spleen. Umbilical and iliac regions full, without actual distension, not supersensitive: small tympanitic resonance all over the belly. Bowels loose, watery stools, various appearance, yellow, greenish, and albo-mucous alternately, never sanguineous. Function of kidneys and bladder natural. Respiration easy, but small, no pain in breathing, no cough now or formerly: spontaneous coughing, (by request.) small and hissing, of the flat soundless character, as if the effort to cough expelled only the air contained in the trachea, the lungs taking no part in the act. A similar cough attends acute primary congestion in pulmonary catarrh, but there is then some sharpness, slight barking, in the sound. A better example is from chronic infarction, when lymphatic condensation of the parenchyma of the lung has nearly destroyed their expansibility. Percussion over the chest gave the following results. Upper clavicular region of the left thorax, natural resonance rather small, increased during inspiration; middle and inferior region, same side, loud echo, as of space fully occupied by air, representing pneumatism, (thoracic tympanitis.) rather than any sound pertaining to ordinary forms of pneumo-incavation. This uncommon symptom was distinct from the fifth rib above, to the abdominal border of the chest, and in all that space from the sternum round to the spine, the echo loudest between the sixth and seventh ribs, about their middle, and of course nearly over the natural space of the apex of the heart. The impulse of the latter organ was given between the sternal heads of the sixth and seventh ribs, on the right side. To the left of the sternum the heart's action could no where be felt. Percussion on the right thorax gave null resonance throughout. From the clavicle to the cartilages below, and from the axilla to the false ribs, the sound was of the positively dull kind denominated hepatic or femoral. Neither in collapse of the chest, nor in the fullest expansion of it the patient could make, was the faintest response elicited from the right thorax, representing the presence of an elastic fluid. There was no mucous, crepitous, or gurgling rale, in breathing, speaking, or coughing, in any part of the thorax.*

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* It may seem an omission, that in describing explorations of the chest, no mention is made of the stethoscope. I am convinced of the value of the instrument, and doubt not the important pathological revelations it is capable of making. After frequent use of it, however, I find difficulty in discriminating some of its indications, and there are two considerable impediments to its common employment in hospital practice. One is the time consumed in certifying

This case had been regarded and treated as one of chronic diarrhœa, ensuing to paroxysms of painter's colic, and the man himself neither suspected nor would believe the existence of any other malady than the disorder of the bowels. He stoutly denied the occurrence at any former period, of habitual, or even temporary cough, pain of the breast, difficult breathing, expectoration, or any other symptom denoting an affection of the lungs. This account, insisted on by the patient, rendered part of the thoracic phenomena, revealed by percussion, of difficult interpretation. In the absence of every present or former sign, sustaining the presumption of decay and removal of part of the lung, how was the drum-like reverberescence of more than half the left thorax to be understood or accounted for. It is true that insidious caveration of the lung is sometimes extensively accomplished, with few concurrent circumstances importing such a change. Slow deliquescence may go on in part of the parenchyma of the lung, while at the same time a condensing process obliterates the air tubes around the decaying structure, and thus matter may accumulate and none be expectorated. Such degenerescence would necessarily be attended by some constitutional disorder in the form of hectic movement, but cough in such a case might be comparatively slight, and being wholly symptomatic, would cease, on subsidence of irritation, when the lesion was determined. To infer the presence of free air in part of the lung space, in this patient's case, was to presume the previous removal, by absorption, of a purulent accumulation, and also the existence of some route of communication with the cavity thus formed, by which air found access to it in breathing, constituting a form of pneumo-thorax.

The pathology which the group of symptoms presented, was old irritation of the stomach, with denaturalization, congestion, &c. of the muco-gastric membrane: conversions and probable ulceration in parts of the intestinal glandular tissue: pneumatism in part of the left thorax; heart removed to the right side of the sternum, and confined by adhesions of the mediastinum, pericardium, and border of the right lung; right lung carnified, fibro-lymphatic condensation throughout; respiration wholly by the upper half of the left lung supposed to be in the normal state.

Independent of presumptive incurable lesion in the apparatus of respiration, this man's gastric system of nutrition was absolutely demolished. The stomach had suffered every grade and consequence

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its informations, and a greater, the impossibility of obtaining the perfect stillness essential to correct diagnosis by the stethoscope, in large wards filled with patients and attendants.

of irritation, short of positive physconitis, and was incapable of accomplishing any process of alimentary elaboration. It was a mere bag or cyst, with sufficient vital attributes to modify in some degree the chemical changes of the food received, but with no powers to convert the properties of that matter into elements of animal assimilation. The case was essentially desperate, and only palliative interference was undertaken. The medicinal treatment consisted wholly in prescriptions to allay pain of the bowels and restrain diarrhœa.

For a time distress of the stomach and bowels was soothed by simple diet, rest, and small anodynes with absorbents. Febrile movement was suspended, looseness of the bowels was stayed, swelling of the ankles subsided, sleep was obtained, the appetite improved, and the patient rallied in spirits and cheerfulness. The relaxation of symptoms was only temporary. The stomach relapsed into loathing of nutriment, and became distressed by the blandest articles, the unconverted remains of which, blending with the morbid secretions of the organ, was changed into acrimonious ferments, causing pain, flatulence, and ultimately forcible vomitings, always soon after taking food or drink. Tormina of the bowels and diarrhœa returned with increased urgency, and the man sunk under the complication of pain, vomiting, purging, and starvation. He died twenty days after admission.

Dissection ten hours after death.—Thorax. Left lung entire and sound, but compressed into the axillary and subclavian region of that side. A large tumour, covered by the diaphragm, the latter stretched until its fibrous structure was beautifully displayed, occupied the inferior left thorax up to the line of the fifth rib. It was this body that pressed the lung upward, and threw the heart over to the right side of the sternum. The tumour itself gave strong tympanitic resonance on being struck, and of course contained air. The right lung, shrunk in size to the natural bulk of the spleen, was hepatized, fibro-scirrhous nearly in every part; pseudo-union of the lung with the pericardium in front, with the diaphragm below, and incorporated with the ribs by coriaceous pleura, half an inch in thickness. Where the bottom of the lung cohered with the diaphragm, there was interposed between the front and back points of adhesion, a large mass of semi-solid yellowish gelatine. Internal structure of the lung consolidated, discharge from cuts into its substance red serosity.

Abdomen. Stomach contracted into small size; coats thickened, and pale, blanched appearance; mucous membrane marked by dark red stripes on its upper surface; broad, blackish-purple patch covering the inferior half of the mucous coat from the middle region of the stomach to the pyloric valve. The stomach contained a large ball of milk coagulum, greatly solidified, and of pungent acid odour. There was nothing of inflammatory patching, no red injection of the muco-cellular tissue, glandular conversion, ulceration, or other morbid state,* in any part of the small or large bowel, until after passing the sigmoid bend; the rectum was contracted, thickened, and its mucous coat red, spongy, and softened by sero-sanguineous infiltration. Though there was not the slightest indication of putrescence about this subject when examined, the small and large bowels were excessively distended by gas. The transverse colon, very much dilated, rose above the stomach, overlaying it completely, ascended into the left arch of the diaphragm, and instead of turning down from that muscle, folded on itself, and on this double head raised the diaphragm into the left thorax, as high as the top of the sixth rib, pressing the lung above it, and thrusting the heart to the right side. It was this great double pouch of bowel which caused the tumour-form encroachment of the diaphragm upon the space of the left thorax, noticed on first opening the chest. The liver was excessively hypertrophied, nearly twice its common size, not presenting downward below the cartilages, but deeply imbedded in the right thorax, and expanded very much across the left epigastrium. The aspect of the liver was pale, not otherwise unnatural, nothing indicating fresh or old inflammation, no condensation, physconitis, no tuberculation or other form of conversion; cut into every where, its interstitial constitution was homogeneous and common. The great fissure was bridged across near the crescentic edge, by strong hepatic substance. The diaphragm adhered by firm pseudo-membrane, to the convex body of the liver. All other viscera of the belly were in the normal state.

Remarks.—The singular invasion of the chest by the colon, constituting an uncommon† form of entero-thoracic tympanitis, had led to difficulty and error of diagnosis, creating suspicion of some mode of defined or circumscribed pneumo-thorax. The high region of the sound, dulled and obscured also by the envelope of the diaphragm, and the intervention of the ribs and pleura, was calculated to render the cause and manner of thoracic pneumatism, inexplicit and doubtful. How long the double pouch of bowel had occupied the seat described, was uncertain. The man was in hospital three weeks; the tympanitis thoracis existed during all that time; for what period before there is no means of learning. The hypertrophy of the liver was not suspected. The hypochondrium had been carefully explored; there was no definable intumescence, no soreness nor marks of condensation. The abdomen was always somewhat full and tight, resisting deep pressure by the fingers, hence one cause of defective proof by touch. The eyes and complexion of the patient were particularly clear, representing nothing of hepatic derangement or biliary obstruction. When admitted, the patient had partial infiltration of the ankles, a condition, however, often symptomatic of chronic bowel disorder, as well as of hepatic derangement. The state of the liver, in fact, was one of those changes in that organ, of slow, insidious consummation, which gives little admonition by any sensible signs, of what is going on there. Both hypertrophy and atrophy of the liver, when unattended by acute symptoms, or an active converting process in the part, often take place silently, or masked by a variety of anomalous and equivocal signs.

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* There was a solitary tubercle about the size of a bean between the serous and muscular tissue of the ileum, which peeled out readily from its place, as from a cyst. There was no marks of inflammation around it.

† Uncommon more in degree than form. In old derangements of the gastro-intestinal functions, a partial development of the left head of the colon within the thoracic limits, may be frequently detected by percussion.

CASE II.—*Pneumo-hepatic Tuberculitis.*—J. Eagle, aged forty-five, middle size, black hair, brown complexion, entered the Baltimore Alms-house, October 4th, 1829. This man presented at first view little obvious expression of sickness; he was not pale, nor emaciated, nor apparently debilitated; the eye was lively and vigilant, his manner alert rather than dull. There was no fever, pulse quiet, temperature natural, tongue clean, appetite good, bowels regular, no special complaint of pain in any seat. His account of himself was, that he got a hurt some time before, by a blow on the right side, and though not at any time in much pain from the injury, had not felt quite well since, and was lately troubled with a small cough, and occasional shortness of breathing. There was a character of shrewdness and appearance of art in this man's manner of replying to questions, which suggested some doubt of his candour in describing his feelings, and his case was passed by for the moment, as the probable effect of recent irregularities, and requiring regimen and rest more than medicinal management. Some fullness about the belly, and partial shrinking from pressure in the right hypochondrium, with acknowledgment of slight soreness there, imported some degree of hepatic derangement, and no other indication presenting, the case was recorded and put on treatment, (moderate purging chiefly,) as one of ordinary congestion and hebetude of liver, presumed from intemperance.

In the first general survey of this case, it had been noted that there was something in the man's countenance, which, while it partook of practised expression of suffering, had yet a character of reality in it, and if real, was the representation of a pathetic state, by no means slight. This idea was strengthened very much after a few days, by observing that the face maintained its peculiar cast, from which it did not relax by any mode of address, designed to divert or surprise the patient into a different expression. The very vigilance of the eye was in excess, and betrayed an indefinable sense of physical distress. The face was at the same time both contracted and flushed; a diffused dark-red tint, importing alike congestion and debility of the capillaries of the part. The breathing was small and confined, and seemingly insufficient: either not supplying air enough for the uses of respiration, or else the function of elaboration by the lungs being imperfectly performed, the breathing did not confer its full and usual benefits. There was, in short, a kind of constraint, representing great impairment of vital energy in the whole nervous system of respiration; the intercostals, the pneumogastric, and its accessories.

It was important to discriminate whether the signs of the embarrassment described, were an effect symptomatic of special organic disease, the general result of constitutional exhaustion, or a consequence of atony restricted to the nervous economy of respiration. The first appeared the most probable cause of all the symptoms. The manner of breathing strongly implied mechanical impediment to pulmonary development, and the difficulty appeared to arise from contraction or shortening of the longitudinal axis of the thorax, as if by encroachment of part of the abdominal viscera on the vertical space of the chest: and although there was at this time no defined intumescence or sensible soreness to pressure in the right hypochondrium, and few constitutional signs of hepatic disorder, yet suspicion attached to the liver, as the organ whose morbid evolution mainly impeded the play of the lungs, and whose functional derangements, as the collaborator of the gastro-pulmonary system, contributed to produce the indefinite yet general character of impaired health. It was in truth difficult to illustrate how disease of the liver should exist with absence of pain, very little soreness, no sensible enlargement of the organ, natural appetite, regular bowels, clean tongue, calm pulse, and total defect of infiltrations. On the indications, however, such as they were, probably in part on that instinct of judgment, (by the visus et tactus,) which the nature of our profession is fitted to create, the diagnosis was hazarded, that hypertrophy of the liver, tending to physconitis or tuberculation, was the pathological state of the present case.

Treatment.—Cupping the right and left hypochondrium. The bowels acted regularly, yet the evacuations were represented to be scanty; a purgative infusion was directed to the extent of moderate purging daily; Plummer's pill at night; friction with ointment of tartar and iodine combined. The patient was kept in bed: diet simple, milk and bread, vegetable soup, rice, and molasses. Second week of treatment; no pain, but slight shrinking from hypochondrial pressure; abdomen soft; tongue clean, and good colour: appetite natural: bowels free, discharges natural; no fever. The expression of face remained as at first, contracted, a sort of grimace about it, extra red, not warmer to the touch than natural: breathing not laborious, but limited, causing apparent fatigue in talking: a check, without pain, on attempting full inspiration, with cough then, seldom otherwise: the cough short, barking, and dry, no sputum of any kind. No soreness of the gums from the pills; medicines, diet, &c. continued. Third week;—symptoms as before: no change in any respect, except that the cough was increased and become more catarrhal, with some pituitous expectoration. Ordered an epispastic to the chest and expectorant mixture: tartar ointment withdrawn as pustulations had formed on the side. Fourth week;—cough abated; breathing freer: countenance losing colour, and putting on a sallow tinge; tongue less fresh, rather paler than natural: appetite impaired: complaint of debility; no fever; abdomen now rather prominent: no tympanitis: circumscribed extra roundness in the right hypochondrium: cartilaginous border of that side raised; the liver pressed close against it within, and feeling solidified, slightly tender to pressure. Ordered free cupping over the right hypochondrium, friction on the belly with ung. hydrarg. and ung. hydriod. potass. part. equales; purging with jalap, crem. tart. gamboge, and squill, small doses renewed at short intervals, until the bowels and kidneys were brought into activity. The cupping was repeated thrice in the course of the fifth week, mercurial friction nightly, and the purgative according to its effect; the action of the bowels being fully maintained so long as the operations were well borne.

The joint effect of cupping, purging, and innuction, was to diminish manifestly the fullness and tension of the whole abdomen, and to lessen the prominence of the right hypochondrium, particularly the tightness or closeness of the body of the liver, along the line of the cartilages, changes of which the patient expressed himself very sensible, and thought himself much better. The constitutional influence of mercury being revealed by metallic taste, swelled gums, and some ptyalism, the ung. hydrarg. was stopped, and the iodine ointment employed alone.

At this time, (the sixth week,) it became noticed by the student in charge, that the cough, always small and hitherto dry, or only slightly pituitous, had now occasionally a slight mucous rale, and that there had been some expectoration of brownish matter and puriform consistence, circumstances which led me to explore the chest carefully by percussion. That this investigation was not made before, arose from the absence of all pneumonic symptoms, other than such as seemed to have an obvious sympathetic character. There was no hectic movement, nor fever in any form; no pain in all the thorax, only slight cough, and that purely tracheal; no sputum of any kind. By percussion now, the following indications. Resonance natural, rather small, over the whole left thorax: distinct and clear above, below, and behind, on full inspiration; no rale, (muco-crepitous,) to be heard or felt in any part of the left lung. Right side, inferior region, null resonance; stroke dull and fleshy; no fluid movement perceptible:* axillary region, impulse same, soundless, fleshy: upper pectoral region, (juxta clavicular space,) indistinct cavernous reverberation, with fluid movement; small cavernous rale in breathing. The diagnosis then stood, left lung sound, right lung hepatized generally, cavernation near the top, or softening there, with muco or sanio-purulent infiltration of that part of the lung.

The case was decided against us. Though there was yet no critical constitutional signs of failing, no fever, no special disorder in the gastro-intestinal system, nor any particular tumult of the nervous or vascular functions, still the organizations were breaking up, and in a habit effete from long irregularities of life, the catastrophe was like to be speedy, as it was inevitable. In a few days after the investigation just detailed, the man was seized with severe colic irritation attended by tympanitis abdominis, requiring anodynes, antispasmodics, laxatives, and enemas for its relief. Under this attack, which lasted part of the day and night, was violent for some hours, and was quieted with difficulty, the patient prostrated very much, rendering it necessary to allow him freely medicinal and alimentary cordials. Next day there was a decided change in the aspect of the case. The belly, always before prominent, and in the right hypochondrium particularly round and hard, was now flat and soft every where, permitting, for the first time, the fingers to pass up readily under the cartilages of the right side. The region of the liver, as well as other parts of the abdomen, was even more relaxed than in the natural state of that cavity. The general condition of the patient bore the impulse of a final overthrow: countenance pale and expressionless: breathing short and slow: voice weak; pulse small, soft undulation: surface cool and shrunk. Was this the state of hepatic abscess broken and diffused? and where diffused? into the abdomen or within the thorax? There was no purging of matter, nor any purulent expectoration. The man prostrated slowly, and died on the fourth day from the change noted, namely, the attack of colic, and its consequences.

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* The right postero-inferior, (dorso-pectoral,) region was not explored, an oversight reproved by dissection.

Dissection ten hours after death.—Thorax. The pericardium and heart of natural appearance and size. Left lung natural in all respects. Right lung, upper lobe emphysematous, general colour dark red; anterior border infiltrated with dark blood; middle and inferior lobes blackish, slate-coloured, solidified, undeveloped, fixed in place by universal surface adhesions; not dissected up at this stage.

Abdomen. Right cavity full of thin flocculent pus, quantity apparently three or four pounds. The liver, greatly enlarged, presented a deep cavern, open by a free rent about the middle of the crescent edge of the organ. The sides of the cavern, which had fallen in, were, throughout, a deep black purple, as far as to their connexion with the undecomposed substance of the liver: the rest of that organ was a pale salmon-red. Slitting the cyst open from the rent in the margin upwards, part of the large cavity in the body of the liver, was occupied by a mass of a dense, pale yellow, curdy matter, having a stringy arrangement, resembling macerated vermicelli. The hollow of the liver, extended deeply backward and upward, penetrating through that viscus into the centre of the right lung, and ascending by a pyramid form or conoid sinus, as high as the middle of the upper lobe. The sides of the liver cavern and lung sinus, were every where flocculent and ragged. No communication was revealed of any of the bronchial tubes with the hollow of the lung. There was no other manifest degenerescence of the viscera of either cavity.

Remarks.—Suppuration was an unlooked-for result in this case. Even after the first surmise of liver disease was confirmed by the subsequent distinct evolution of that organ, nothing more was anticipated, than that the change, if incurable, would reach some stage of hypertrophy and condensation, at which it would stop, the conversion become indolent, and the general health escape any particular crisis, until some new irritation should revive diseased activity in the part, or slow constitutional decay, (in the form of dropsy or symptomatic phthisis,) wear the patient out. The case affords another proof, of what there have been many examples, that some visceral suppurations are to be little discriminated by the pulse. For eight weeks that he was in hospital, this man could not be said at any time to have fever, nor did he acknowledge any sense of chills, either hectic or casual, until after suppuration was betrayed by the palpable demolition of the liver tumour, and then the coldness confessed, was alike the sensation and the sign of fatal prostration. Suppuration had been accomplished long before. The manner of decay, the appearance of the cavern, the qualities of the matter, and the symptoms during life, pointed out the local disease as slow tuberculoid abscess of the liver on a great scale. The morbid development in the lung of the same side, is explained by the agency of irritation through the relations of place and structure, and the result of that irritation, no doubt the more readily accomplished, from a tendency contributed by constitutional causes.*

CASE III.—*Pneumo-hepatic Abscess.*—While making the tour of the Alms-house Infirmary in the first week of December, (1829,) a patient admitted on the previous day fell under notice. He was a tall man, aged about thirty, form wasted, countenance shrunk, pale glow on the left cheek, position on the right side. "Pulmonary suppuration," was the remark the sick man's aspect produced. The reply by the gentleman, (Dr. OWINGS,) having charge of the case, was, "gastric fever." The diagnosis volunteered, always censurable, (even though it happen to be correct,) when thus pronounced on bare presumption from external signs, was withdrawn with apology, and with the observation, that the judgment being founded wholly on the characters of face, a mistake might readily happen, as the expression of countenance was remarkably similar in some stages of pulmonary suppuration and of gastric fever; that the two forms of disease were in fact sometimes coincident, and occurred in the same case. The report of the case furnished, as given by the patient when admitted, was, that two weeks before coming to the house, he was attacked by fever in the remitting form, (called bilious fever by the patient,) namely, chills and fever daily for many days, with sick stomach and vomiting; that the chills left him after taking some doses of purgative medicine, but fever continued with constant head-ache and disordered stomach, and afterwards pain of the bowels and purging came on, which latter, with the fever, &c. remained as when admitted the day before.

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* The man lived three days after matter had been effused into the cavity of the belly.

Symptoms this day.—Skin warm, but moist; pulse 80, and soft; pale flush in both cheeks; tongue, edges extra red, surface granular, middle line brown sordes with a border of white, scant moisture and sticky; no sickness of stomach now: indifference to food: very little thirst. The abdomen was rather full, but scarcely tender, epigastrium had been sensitive when admitted, but could not be satisfactorily explored now, as it was sore on the surface from free cupping there the day before. To moderate pressure in both hypochondria, it was denied by the patient that there was pain or hurt in either. The respiration was slow, apparently easy, no cough acknowledged by the patient now, none during his sickness, never was subject to cough, pain, expectoration, or other disorder of the breast: had been in good health for a long time, always was his report, until taken sick two weeks before, and was sensible of no disease at present, other than the dysentery, fevers, head-ache and weakness. The general account seemed to render minute scrutiny superfluous, and the case was left on the judicious plan of treatment arranged by the student in charge. The epigastrium, the only acknowledged seat of extra sensibility, had been well cupped, to which the tepid general bath had succeeded. From both means improvement of feeling had ensued, soreness about the stomach was abated, fever lessened, head relieved, and bowels quieted. The patient was taking carbon and magnesia as sedatives of gastric irritation, neutral mixture, (non-antimoniated.) as a febrifuge, with cool acidulous barley water, and an occasional dose of creta, ipecacuanha, calomel, and opium, small proportions of the three last to keep the bowels in check; diet unirritating.

Two days subsequently, the general character of symptoms much the same. Position still on the right side; languid indifference and pale glow of countenance; slight febrile movement; tongue less red and softer; soft skin; slow, small breathing. Patient thought himself better; took nourishment with some relish; bowels less moved; stomach not so tender; head easy; no cough; slight pain at the end of the sternum on full inspiration; no other uneasiness in breathing. Ordered a vesicatory on the epigastrium, the neutral mixture and acidulous drink continued, carbon and magnesia deferred, pulv. cret. comp. at night to maintain quiet of the bowels. At the next round of the hospital, thirty-six hours after, and the fifth day of the man's reception into the ward, this case was found still without any explicit signs of amendment; position of body, character of countenance, state of pulse, &c. same as when last examined. The opinion hastily pronounced on first sight of this patient, now revived so strongly as to cause me to institute particular investigations, not practised before, because the views of the attending physician, founded on examinations made by him at first, the general history of the case, and the absence of symptoms representing any prominent pathology, diverted the suspicion once entertained of special organic embarrassment. With the hand expanded on the chest while respiration was carried on, the movement of dilation of the lungs was found natural, soft, and equal, without sound or thrill in any part of the thorax, except between the sixth and seventh ribs on the right side. Here, just below the pap, there was an obscure feeling of crepitus and gurgling, corresponding regularly to the acts of breathing, and distinctly increased on larger inspiration. Coughing, (by request,) gave sudden, defined, vibratory shock under the hand, at the place indicated, which was several times renewed strongly, and again scarcely perceptible, as the efforts of cough were repeated. The alternate occurrence and absence of the distinct crepitous shock in the part, appeared to import, that in some of the acts of coughing, air was forced into a cavity containing fluid, while from the smallness, or some other cause of obstruction, in the route of communication, other acts of coughing failed to introduce air. Position was changed to the back, the patient being unable to bear well the exertion of sitting up. Percussion gave natural resonance over all the left thorax. In the right thorax, small echo near the clavicle; dull, fleshy sound through the middle and inferior right regions; no cavernous resonance any where. The epigastric and hypochondriac regions, hitherto sore on the surface from first cupping and afterwards the blister, were now carefully explored. No shrinking from pressure any where to the left of the end of the sternum. From that point, along the cartilages of the right side, there was manifest extra fulness, a partial representation of the form of the liver being defined by the integuments of the right hypochondrium. Pressure in all the region of fullness gave pain, but much greatest far back near the free ribs; the sensibility there was acute. There was no symptom of inflammation in the skin over the region of general swelling, or that of special sensibility.

Diagnosis.—Left lung natural. Right lung condensed; inferior lobe softening, with sanio-purulent infiltration; central substance cavernated, supposed partial, and probably closed; acute congestion, verging to abscess in the great lobe of the liver. Ordered cupping freely on the right side, sponging the abdomen with warm salt water, mercurial friction on the belly every six hours, calomel, pulv. antim. ipecac. et op. diaphoretic doses, every three hours, acidulous barley drink, rice diet.

The man prostrated and died rather abruptly, on the third day from the date of the last report and prescription, having been eight days in hospital. When his death was mentioned to me by the gentleman attending the case, it was noticed, that pulmonary and hepatic suppuration were the lesions to be revealed by examination of the subject, and if found, the result anticipated by us during treatment as likely to happen, in reality existed at the time we were endeavouring to avert it, and probably had been accomplished before the patient was brought to us.

Examination by Dr. Owings and Mr. Glassell. *Report.*—Deep abscess in the body of the liver, and another in the lower lobe of the right lung, both containing a large quantity of pus. The abscesses communicated through the diaphragm, but were supposed by the gentlemen examining to have formed separately, matured about the same time, and to have blended afterwards. The form of the cavities and the manner of communication led them to this conclusion. The upper lobe of the right lung was apparently sound. No decay or conversion of any part of the left lung. No manifest gastro-intestinal pathology.

Remark.—From the small gurgling rale distinguished by the hand during inspiration, it is plain that air entered the abscess by some bronchial route, probably a very contracted passage, as none of the fluid of the cavity found its way in the air tubes or cells, there being neither expectoration nor cough. The impulse of fluid jar or dash, under the hand opposite the seat of abscess, in voluntary cough, seems to have been a species of succussion by the matter, (with some air,) from sudden compression or shock by the act of coughing.

CASE IV. *Melæna Cholea.*—George Lambert, aged thirty-eight, admitted into the Baltimore Alms-house, 27th of October, 1829. This patient's whole appearance exhibited a very strongly marked case of that rare form of jaundice denominated melœna, sometimes "icterus nigra," "icterus viridis," "viritia," &c.; all terms of ancient use, and having reference in part to the tinge or hue of the patient's skin, eyes, &c. and in part to the colour of the excretions. The complexion of this man all over his body, was that shade of yellow-brown, resembling sole or saddle leather long exposed to the air. The white coat of the eyes was not lemon-coloured, as in common jaundice, but of a dull greenish-yellow tinge, not very distinct itself, but serving to mask and obscure very much the natural colour of the tunics. The man was emaciated a good deal, and in his countenance and movements betrayed the listless, inert, subdued state of mind and body, so characteristic of jaundice in all its forms. The account he gave of himself was, that he had been formerly subject to ague, had suffered an attack of that disease about two months before, which had quit him three or four weeks past, but was followed by dysentery, which had run on until he could keep up no longer, and therefore came to the Alms-house. He acknowledged to have been a free drinker, though seldom intoxicated.

The pulse in this case was soft and small, with some (irritative) frequency: tongue pale and thin, coated with soft brown slime; fauces generally moist and without colour: no pain or sickness of stomach; indifference to food; no thirst; bowels loose, without tenesmus; discharges generally bloody mucus, sometimes viscous matter of deep green colour: urine scanty, pale brown, and staining linen a dirty orange-yellow. The abdomen was full, rather prominent: the region of the small intestines somewhat sore to pressure, left hypochondrium not at all so: the epigastrium and hepatic region a little tender; no traceable intumescence or induration of the liver. The patient had cough, not frequent, soft, with crepitus, as of free bronchial excretion: expectoration seldom, and then of a very peculiar character, not ordinary mucus, nor muco-purulent, but a viscid matter of deep verdigris colour, and to the patient, strong bitter taste. Respiration was slow and small, no pain in the breast in breathing or coughing, slight hissing rale heard and felt in both sides on inspiration. Resonance to percussion rather small over the chest generally; inferior right region, sound dull, diffused, slightly cavernous, gurgling crepitus felt there on full inspiration, more distinctly and with sudden increase by coughing. The patient could give no satisfactory account how long since his skin began to put on the leather-like hue, now so predominant, indeed was not sensible that there was any thing remarkable in his complexion. He was equally ignorant how long he had cough, and regarded it as a slight symptom; his attention was engrossed by the disorder of his bowels, which he thought his only disease. Prurigo, so general in jaundice, was very manifest in this instance; the man's constant employment when awake, was scratching, unconsciously, his breast and arms.

The diagnosis was here sufficiently plain, the prognostic eminently bad. There was total and permanent vice of function in the liver, with probable extensive interstitial condensation of that viscus. Diffused chronic phlogosis, perhaps miliary ulcerations of the muco-intestinal membrane; infiltration of the peritoneal cavity; lesions contingent on old hepatic derangement. In the lungs decay of texture was indicated, with softening and partial cavernation of the right inferior lobe.

We did all in our power to give this case a tendency to improvement. It was endeavoured to quiet irritation of the bowels, to rouse the liver from its inactivity, change its morbid habit, and at the same time invigorate the gastric functions. All those objects were consulted by means directed immediately to the system of nutrition, and indirectly to that system through its relations with the surface. Cups to the abdomen, the tepid bath, sponging with dilute nitro-muriatic tincture, friction with ung. hydrarg. camph.; pulv. calomelan. creta et opi. were the agents by which the indications were attempted to be met. The total torpor of the nutrient function, pointed out urgent necessity for reaction in that system; the substitution of some healthful excitement, for the profound hebetude of the chylopoietic office. In addition to the surface excitants employed in part for this purpose, the patient was ordered an alterative diet drink, rendered tonic by bitters with aromatics; the formula, decoction of sarsaparilla, taraxacum, gentian, cardamom, to which super carb. sodæ was added.

For many days there was no manifest change in the patient's state. He was comforted somewhat in feeling by the bath, rest, comparative restraint of the bowels, suitable diet, drink, &c. By these means the fulness and extra sensibility of the abdominal viscera was lessened, but the actual pathology of the case remained unaltered. His complexion retained its deep brown hue, the eyes their dull look and greenish-yellow tinge, bowels still too loose, discharges thin, sometimes coffee-ground appearance, again mucilaginous and dirty-coloured, resembling soft soap, occasionally intense deep green porraceous matters; urine always scanty, dull yellow-brown, and soiling linen deeply. Cough continued with some expectoration, and all discharged by the mouth, either with cough or by common spitting, to which latter the patient was much addicted, was deep green matter, mucous consistence, like the fresh juice of grass or leeks. The moral circumstances of the case were no better than the physical; nothing interested the mind of the patient for a moment, other than an occasional caprice respecting food. The intellectual inertia common in jaundice, prevailed so entirely, that neither his feelings nor his fate gave the patient any concern; he seemed to have no complaints and few desires.

Our exertions in the man's behalf, assiduously maintained, were wholly unprofitable. There appeared no attributes of respondence either to medicinal or alimentary exciters; the organs of assimilation had lost both the habit and the appetency of nutrition. The patient's constitution was worn out by chronic irritation multiplied from many seats, and uncontrollable diarrhœa was constantly melting away the small remains of vital power. He fell into profound indifference to every thing, refused medicine, food, and drink, for four or five days, and died in a painless, almost imperceptible manner, on the 10th of November, fourteen days after entering the ward.

Examination eight hours after death.—Thorax. Unusual serosity of the sub-sternal tissues: some water, one to two ounces, in the pericardium. Left lung, water in the pulmo-pleural sac, parenchyma softer and more spongy than natural, interior studded with whitish granules; puriform exudation wherever cut; no abscess, cysts, or sinuses. Right lung like the left in its upper and middle portions: lower lobe soft and friable, with incavation of its central part, and palpable softening and disintegration for some extent around.

Abdomen.—Moderate ascites; liver common size, very firm, extra solid: gall bladder large and very full, contents thick, almost pultaceous. The surface and substance of the liver particularly dark, fabric dense, harder than natural. No scirrho-conversion, tuberculation, or other palpable degenerescence.

One phenomena in this examination struck the attention of all engaged in it, as remarkable and quite new to them. In the thorax and abdomen all the fluids and all the tissues were of a distinct greenish tinge, sufficiently strong to mask every other colour. The green hue manifest every where in the fluids, was particularly strong in the matter exuding from sections of the body of the liver. The cut surfaces of that viscus, scraped with a knife, supplied a fluid so highly charged with green colouring matter as to resemble verdigris, or the juice of green vegetables newly expressed. The gall bladder was distended with a black-green semifluid matter. The state of the common duct, as to freeness or obstruction, was unfortunately not investigated.*

Remarks.—The most interesting concomitant of this case of ultra hepatic pathology, is the fact, that all the patient discharged from the mouth, whether by expectoration or ordinary spitting, was uniformly and intensely green, staining deeply whatever it touched. The absorbents of the liver had distributed the morbid fluids of the organ so thoroughly, that the secretions from all the surfaces and even the organic elements, were contaminated and stained.

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* The subject was examined in my absence by the senior and associate pupils, to whom I am indebted for the autopsic report here briefly presented.

It is to be regretted that the brain and its investments were excepted from inspection. Other duties pressed at the moment on the time of the gentlemen who examined the subject, and the investigation was not sufficiently full.

The form of disease, of which the above case supplies an example, is comparatively rare. Both the local and constitutional symptoms, differ a good deal from other modes and signs of derangement denominated liver diseases; while this affection, (melæna,) though less violent in its assault, and slower in its course, than the common disorders of the biliary system, is perhaps finally more serious and invincible than them all. This state of the liver, and its influence on health, has been attributed to essential hebetude of the organ, a worn out condition of its energies involving absolute incompetency to elaborate well, and inability to transmit through the proper channels its bilious products. The secretion, morbid even at first, is supposed to stagnate in its primary receptacles, and thus by its bad qualities, and the changes incident to long detention in the passages, to become a permanent cause of irritation, as well as a corrupter of the fountains of nutrition. Nearly all writers who have described melæna, seem to regard it as something more than mere extension or intensity of customary jaundice, and without being able to illustrate clearly the distinction they conceive to exist, or set the supposed discrepancy in a strong point of view, yet esteem the disorders as in reality very different. Some connect the disease in question with a peculiar pathology of the liver, whose nature and cause are unknown, but differ from the usual and familiar agents of interference with the health of that viscus. Refinements of this kind, though not without appearances of support, are, perhaps, little profitable as aids in the treatment. I infer the infrequency of melæna, alluded to above, from the fact of having met but one instance of the disease in private practice, and still more, because a somewhat long supervision of hospital practice has brought only two examples of the disorder under my notice, besides the case just reported.

Case V. *Melæna.*—In the summer of 1827, a man was brought to the Alms-house in the following state:—countenance wan and sallow; hue of skin resembling pale brown leather; no tint of colour in the face or lips; person emaciated; skin flaccid; muscles thin and soft; pulse small, slow, and weak; eyes heavy, with some jaundice stain. The tongue and fauces of the patient were remarkable; the former blanched and slimy without a shade of red; mucous membrane of the mouth generally dull yellow-white, very much like a lining of old buckskin. There was no complaint of pain any where; belly rather prominent without soreness to pressure; small ascites; no infiltration of the limbs.[*] There was a large old ulcer on one of the legs, whose appearance was pallid as the rest of the surface, without granulations, and discharging abundantly a yellowish serosity. The appetite was variable from voracity to indifference; bowels loose; stools either gypseous or like soft soap, sometimes lienteric, always passed without pain. The general course of life in this instance, intemperance continuously to the utmost excess.

The patient was so down, and the case every way so bad, that treatment was instituted more as matter of course than with expectation of benefit. The plan was tonics with alteratives concurrently, and varied in combination, formula, and force, as changes and exigencies seemed to require. New phenomena were successively developed. At one time deep dark jaundice supplanted the dull sallow hue of eyes and skin. Afterwards full ascites was added to the other embarrassments of the case; diarrhœa with vicious excretions continuing always. The patient lived in despite of every complication; the symptoms mitigated by slow recession; a better state was gradually substituted, and at the end of four months the patient was discharged the hospital, with the looks, spirits, and strength of advanced convalescence.

In July, 1828, eight months from the date of his discharge, this man was brought again to the infirmary of the Alms-house. His condition now could not be realized in idea from any description. The following is an imperfect sketch of his case. Colour generally dull green-yellow, with blotches of red-brown all over the body; belly distended to glistening by large ascites; skin of the belly mottled, (yellow, brown, and purple,) with a web of large blue veins traversing the abdomen in every direction; countenance dark mahogany colour; eyes jaundiced and blood-shot; whole expression of the face presenting the morbid animation of the temulent maniac; mind delirious; great motivity. The surface of the body was cold, pulse quick and thready. The fauces of the patient exhibited a manner and amount of local irritation, of which I had seen no former example. The whole inside of the mouth was fiery red; tongue black red, and swelled as in acute glossitis; under surface of the tongue partly detached from the floor of the mouth by deep clefts on the sides and through the frenum in front; lining of the fauces strong dark red every where; cheeks and lip separated from the gums of the lower jaw on both sides and in front by deep ragged fissures; gums black-red, and furrowed through in lines opposite the intervals of the teeth; teeth loose.

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[*] In none of the cases of melæna which I have seen did anasarca appear in the least degree, though two of them had full ascites.

The viscera could not be discriminated by taxis, owing to the tension of the belly. Bowels loose; stools black-green, granular, and slimy; appetite voracious; thirst natural. Respiration was short, not very quick, apparently not painful; frequent wheezy cough, mucous rale in coughing; some expectoration, mucous consistence, yellow-green tinge; urine small, brownish-red. The ultra pathology of this case, a morbid consummation beyond the ordinary limits of vital tolerance, was the terrible triumph of unremitted hard drinking from the time of the man's former discharge from the house.

It was interesting to witness the contest kept up in this case by the constitutional energies, in a system invaded every where and virtually subdued by the irreparable demolition of all the principal means of resistance or repair. For a time the struggle was so well maintained, that final victory of disease was rendered almost doubtful, or at least its full triumph likely to be postponed to an uncertain period, much more distant than at first seemed possible. By rest and soothing means,* the patient in a few days recovered the faculties of mind sufficiently to give an intelligible account of his sensations. The vito-animal functions at the same time rallied to relative steadiness, the pulse especially acquired distinctness and some strength. The appetite morbidly ravenous when the patient was admitted, continued always keen, and notwithstanding the intense display of irritation in the nutrient organs, some degree of alimentary conversion was accomplished. After the second week of treatment, the alvine discharges were so much changed for the better, as to be at times almost well-elaborated fæces. A correspondent improvement in the state of the mouth accompanied the meliorated state of digestion; the tongue and fauces gradually lost their dark red hue; the deep, foul fissures beside the tongue and cheeks first became clean, and afterwards closed, so that the mouth at last, in the third and fourth week of treatment, betrayed no peculiar derangement of its mucous tissues. But here the reaction in favour of the patient stopped. The abdomen continued tumid to excess; surface of the belly tense, versicolored, and sore to touch; complexion of face and skin generally retained the deep dark stain of melœna.

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* The treatment was calming and supporting. The alkaline carbonates, with small opiates to abate irritation, restrain diarrhœa, and quiet nervous tumult; light cordial nutriment. The alterative plan was commenced as early as the constitutional state admitted. It consisted in a guarded mercurial course, (essentially "Plummer's pill", reduced in strength,) sustained by combination of bitters with alkalies, occasionally decoct. sarsaparill. comp.; diuretics of the mildly cordial class. Surface excitants were diligently employed; sometimes, during fever, the warm salt bath; sponging with moderately pungent nitro-muriatic wash, and pediluvium of the same constantly practised.

The patient died in the seventh week from admission, having remained a considerable time in a state of neither sensible gain or loss. No new or active development preceded the close of the case; death took place quietly and rather abruptly, without any marked premonitory signs of such a crisis.

Dissection revealed large abdominal dropsy: hypertrophy of the liver without palpable conversion: colour of the organ dark gray; portions of pseudo-membrane adhering to its surface: gall bladder full of thin green fluid, ducts not obstructed. Peritoneum and peritoneal coat of small bowels flocculent, (same as the liver;) granular tuberculations abundant on the surface of both. Mucous membrane of ileum, and part of right colon dark and spongy: glands of ileum large with melanose conversion. Mucous coat of stomach and duodenum thickened, soft, and friable: not super-coloured. The serosity of the abdomen was deep yellow-green. The surface of the liver was diversified by lively green stains, on a dark gray ground. No pathology or special results in the thorax.

CASE VI. *Melœna—Parabysma—Hepato-splenium—Ascites and Diarrhœa.*—A woman in the infirmary of females of the Alms-house at the date of this report, presents the fourth case of melœna which has fallen under my notice. Elizabeth Kyfle, aged thirty, tall person, light form, much emaciated, entered the Alms-house Infirmary November 12th, 1829. The general hue of skin in this case was dark yellow-brown, without a tinge of red. Whole appearance of patient represented extreme constitutional hebetude, a low inert state of all the functions. Pulse quick and weak: surface fever warm; muscles soft and flaccid; tongue pale and smooth, yellow mucous coating; fauces same: appetite extinct: belly prominent and fluctuating; epigastrium tender; liver developed and solidified: spleen large, pendulous in left iliac space and hard; no infiltration of limbs; bowels purged, discharges dark, granular, and soapy. Patient had cough, soft mucous sound; some expectoration, greenish viscid sputum; respiration short and quick; no pain of the breast. On the left side of the head, middle parietal space, scalp sore and puffy, with abscess fluctuation in two or three contiguous cysts. From this point a red stripe ran down the neck, in the tract of the superficial absorbents, to the clavicle, where also there were small abscesses in an open state, discharging sero-purulent fluid. Such were the prominent marks when admitted, revealing melœna, complicated with parabysma, hepato-splenium, ascites and diarrhœa, to which were added, fever, tuberculous catarrh, and strumous cachexy, the latter in the form of chronic inflammation, with abscess of the cervical lymphatics and ganglions. The patient's account of herself was, that she had been out of health for a long time, had been often the subject of ague, was not addicted to drink, but had taken laudanum daily for two years, one to two, sometimes three drachms, in the twenty-four hours.

The case remained long with little obvious change. Symptomatic fever, slow synochus type, ran on a steady pace, yet with some decline. Abdomen continued full and tender; diarrhœa obstinate, excretions always bad, eruginous and slimy, or sero-sanious, (lotura carnium.) Breathing still quick: small cough, mucous rale; scant expectoration, greenish, sometimes pale red matter. Right thorax, faint resonance every where. Left thorax soundless, (fleshy,) generally; a small point, central space of left lobe, gave respiratory crepitus, and some echo of cavernation. While on the alterative plan, (decoct. sarsaparill. comp.) with mild mercurial association by friction; some improvement resulted. The abscesses of the scalp and neck closed, cough and expectoration lessened, abdomen relaxed, bowels less irritable, (excretions still morbid,) febrile action meliorated, appetite a little revived. The general complexion of the patient was unaffected. The skin seemed thoroughly imbued with a sallow brown hue, not to be discharged or lightened.

At this stage of comparative amendment in the case, mercurial action was suddenly revealed, and ran on directly to profuse salivation. The constitutional powers of the patient gave way abruptly under full mercurial influence, and she sunk so low as to render it probable she would not survive the shock. To extreme general debility, succeeded in a few days, low delirium, abolition of consciousness, feeble, faltering pulse, loss of temperature, cold extremities, and other signs of critical collapse. By the diligent exhibition of cordial sustaining means, the vital functions were slowly roused from their dangerous lethargy, and with revival of the mental and bodily faculties a state of things was brought about more propitious to the patient than at any former period since admission. All dropsical phenomena were now lost, the prior visceral derangements, (of the liver and spleen,) were abated, there was only slight cough, and the constitutional balance was so far restored, that symptomatic fever wholly subsided.

The amendment of the patient was constant for some weeks; appetite became good and strength returned; patient left her bed, was alert and cheerful. During this period the complexion cleared up in some degree, though still remarkable for total destitution of all blood tint. The patient was at this time discharged from medical regimen but kept her place in hospital doing light work. In two months after this apparent convalescence, the patient began to complain of oppressed breathing, soreness of the breast, chills and feverishness, short dry cough, &c. indicating revival of phthisical catarrh. Pulmonary symptoms advanced rapidly, acute hectic became developed, and at date of this report extensive tuberculous apostemation is betrayed by copious purulent spitting. The symptoms of decline are every day more manifest, and the patient is consuming fast under per-acute irritative fever, concomitant of lung degenerescence. There are no palpable infiltrations. Parabysma of liver and spleen seem indolent.

CASE VII. *Hepatic Caruncnlation.*—Hannah Peck, aged forty, admitted into the Baltimore Alms-house, October 9th, 1829. Disease universal dropsy. In this case every part of the system revealed the effects of active infiltration. There was dropsy of the chest with all the embarrassments of respiration belonging to that state: distension of the abdomen to great size, with a loaded and quaggy state of all the superficial cellular tissue, except only of the forearms and hands; the legs particularly were shapeless masses of soft œdema. In other respects the woman was not very ill. The mind was clear and cheerful, the countenance undistressed, (the eye remarkably lively,) appetite good. There was no fever, no pain, nor any complaint but of short breathing.

The history of the case furnished by the patient was, that early in August, 1829, while performing the labour of washerwoman out of doors, she was attacked by chills and fever, and became very ill from continuing her work some days, exposed to the sun, after invasion of ague. To support her at her task during that time, she acknowledged having drank freely of spirits and water. After some days the fever ceased to return in ague paroxysms, and left her very weak, with fixed pain in both sides, the right especially, difficult breathing, and some cough. To these symptoms soon succeeded swelling, first of the ankles, feet, and legs, and shortly of the belly, with harder and shorter breathing, wheezing, and finally, inability to lie down. In three weeks after cessation of the ague, she was swelled all over, as when admitted into the Alms-house. She took no medicine hitherto, either on first being sick, or during the progress of dropsy.

Apart from the symptoms noted, the constitutional state of the patient was briefly as follows. Pulse natural; temperature healthy; tongue clean; appetite good; bowels slow; urine scanty; catamenia irregular. Examination of the viscera of the abdomen was wholly prevented by extra fullness and tension of the belly. There was no longer any pain in the region of the liver, and none of sympathetic irritation about the shoulder. The eye was clear, the tongue without sordes of any kind, and the alvine excretions, though sparing, were natural in colour, &c. Clumsiness from general infiltration, some feeling of debility, but more than all the rest, oppression of breathing, were the only apparent or acknowledged characters of depraved health.

The case was put on treatment by hydro-cathartics combined with bitters, renewed continually as far as well borne, and liberal use of saline diuretics. The effect of those means was abundant fluid purging, and copious diuresis, followed by early and great relief of breathing. The catharto-diuretic plan was maintained, with necessary remission according to its effects, and was always promptly answered by full discharges both from the bowels and bladder. The amount of fluid evacuation by medicine in this case, was in fact altogether uncommon. From the bladder especially, urine flowed continually, not by slow draining, but in great quantity, so that the patient was under the necessity of passing much time day and night on the close chair. This medicinal diabetes seemed mainly the effect of minute portions of "fecula elaterii," added to the usual squill and calomel diuretic. While the latter, or other common catharto-diuretic forms were employed, the evacuations were liberal and fluid in a very considerable degree, but it was only when the elaterium was associated with them that the flow from the bladder became copious, constant, and almost involuntary. The elaterium did not in this case, as it often does, distress the stomach, or prostrate the patient. She kept her appetite, strength, and spirits surprisingly well.

We had soon occasion to remark, that the real benefits of treatment did not correspond to the sensible operation of the means employed. The respiration of the patient was greatly and permanently relieved, but the signs of general dropsy remained at their primitive standard, notwithstanding the uniform and efficient action of medicine on the bowels and kidneys. Water passed from the natural outlets in quantity apparently more than sufficient to drain all the cavities, and free the whole cellular tissue; yet the abdomen was always full, and the lower extremities excessively loaded:* the belly was so replete with water, and so uniformly tense and unyielding, that the liver was always out of reach, and no sign existed to illustrate the state of that viscus, other than the presence and amount of abdominal serosity. Yet the persistence of full ascites, notwithstanding, and even during active hydro-catharsis and diuresis, strongly imported the probability of great structural change of the liver, and in the absence of active congestive or bilious characters of derangement, the denatural state was supposed to consist in condensation of that organ.

After full trial for some weeks of all the counter-agents of dropsy, varied according to the indications, and urged as far as was compatible with due regard to the powers of the constitution,† it became manifest that we had accomplished no conquest of the symptoms sufficient to justify expectation of final triumph over the disease. It was in the abdominal accumulation we encountered an obstacle to cure, permanently invincible. After every other part had acknowledged the effect of treatment, the belly continued always full, never losing any thing of the bulk and tension of complete ascites.‡ When convinced by the period of trial and the limited influence of treatment, that the abdominal serosity could not be taken off or kept down by medicine, we resolved on direct evacuation by the trocar. To this resort the patient's timidity and solicitations constantly opposed an obstacle not to be overcome but by compulsion, and we reluctantly omitted an experiment presenting the only alternative from which even temporary relief could be hoped.

The constitutional energies of the patient now began to fail sensibly, though slowly, and it had for some time been necessary to support her by a generous diet, and the exhibition of tonics. There was only small and temporary respondence to all the attempts at support. The vital functions betrayed a character of inertia daily increasing, and without pain or fever, constitutional power appeared constantly failing under mere chronic incumbrance of the mass of water. This state terminated in death about the middle of January, (four months after admission,) unmarked by any new symptoms.

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* These were emptied by free incisions.

† Salivation was maintained as long as seemed necessary or prudent.

‡ In many cases of abdominal dropsy, become chronic, we have applied and repeated vesicatories on the belly, sometimes with rapid lessening of dropsical volume. In the case before us, they, (blisters,) produced no benefit.

Dissection sixteen hours after death.—Thorax. Heart natural: lungs sound, non-œdematous; small hydrothorax in both pulmo-pleural sacs.

Abdomen. Large ascites; serosity without colour, somewhat albuminous. Peritoneum, stomach, spleen, bowels, kidneys, uterus, &c. natural appearance. Liver smaller than natural, anterior surface universally carunculated; fleshy vegetations, firm substance, formed a close crop all over the convex face of the organ, having their tops covered with a pellicle of lymph, and a dense sheet of the same matter, spread from the base of each caruncle to the adjoining, constituting a thick coating of lymph every where over the front of the liver. The size of excrescences varied from the bulk of a pea to that of a filbert. The internal organism of the liver natural: gall bladder and duct in the common state.

Remark.—I am not aware of any interest proper to the special form of hepatic disease revealed in this case, other than its novelty. In numerous dissections, disclosing multiform characters of conversion and degenerescence of the liver, I have seen no former instance of carunculation; nothing like the crop of fleshy tubercles which studded the surface of the organ in the present instance. It would appear that there existed in this case greater activity of infiltration, especially ventral, than is common in dropsy from ordinary derangements of the liver.

Baltimore, February, 1830.

Art. VII. *Case of Trismus Nascentium, in which Tracheotomy was successfully performed.* By John Bellinger, M. D. of Charleston, S. C. Read to the Medical Society of South Carolina.

On the 7th of May, I was requested by Mrs. G. one of the persons whose families had been confided to my care by Dr. Dickson, during his late absence from our city and state, to visit her servant Sarah. She had been upwards of twenty-four hours in labour with ner eighth child: being of a weak frame, and in delicate health, unequivocal and alarming symptoms of exhaustion began to appear, and the attendants demanded medical assistance. Having ascertained the presentation of the child, and the condition of the soft parts, and both being favourable to the administration of ergot, I gave her a dose of the infusion, equal to fifteen grains. Its effect was soon manifested by a revival of uterine action, which had nearly ceased. The pains were, however, feeble: in half an hour the dose was repeated; and in two hours the child was safely delivered. Nothing untoward occurred;* both mother and child were put upon the ordinary treatment, and after the lapse of a week, my visits were discontinued.

On the 21st, I was sent for to see the infant, and found it labouring under confirmed trismus. The mother stated that on the ninth day, "the child was griped;" some domestic remedies were administered, but it becoming worse and worse, I was called in. The treatment now pursued, was to open the bowels gently, with the best castor oil; and afterwards to give a watery solution of opium, proportioned to the age of the patient. The disease progressed notwithstanding, towards a fatal termination. The following is a brief outline of what was its condition at this stage:—The child could neither suck nor swallow; the muscles of the throat were rigid; and the larynx fixed; spasms of the muscles of the neck, chest, abdomen, and back, recurred, (by experiment with a pulse-glass,) every half minute. During these paroxysms, the veins of the neck and scalp became turgid, and the eyes seemed ready to start from their sockets. Respiration was performed with much difficulty; and in inspiring, the air produced a whistling sound. The pulse was small and fluttering.

I represented to the mother and mistress of the child, that death was rapidly approaching; but proposed, with their consent, to open the wind-pipe, and thereupon explained to them, the nature and objects of the operation. They were both anxious that the child should live, and without much persuasion, agreed to my proposal. It was between ten and eleven o'clock, P. M. of the 23d, that I proceeded to operate, in the presence of Dr. H. C. GLOVER. The child being laid across the lap of an experienced and steady female assistant, with a scalpel of the smallest size, an incision, half an inch in length was made over the inferior portion of the larynx: this incision penetrated the skin. Two others having been practised in the same direction, and the trachea thereby exposed, it was fixed with the fingers of the left hand, and a thumb lancet cautiously, but resolutely plunged into it. The air from the lungs instantly rushed through the opening, bubbling up the blood, which in a few seconds was frothed out of the mouth: by both which we were assured that the operation was complete. The hæmorrhage was arterial; and considering the age and exhaustion of the little patient, was considerable. After sponging the wound, a small cylinder of goose-quill was introduced into the opening made in the trachea; but being soon choaked with blood and mucus, was withdrawn, cleaned out, and replaced. This it was necessary to repeat several times; and in consequence of the dimness of the light by which I operated, was always attended with difficulty, and occasioned mechanical irritation of the lips of the wound. The hæmorrhage, however, soon ceased, the quill was no longer obstructed, and the child breathed through it pretty freely. A remarkable change was now observed in the most prominent symptoms: whereas, it had previously been agitated by strong and frequent spasms, and during the operation, had been very much convulsed, our patient now lay motionless, and seemingly inanimate. By our glances, Dr. G. and myself, communicated to each other, our apprehensions. On touching the wrist, however, we found the pulse regular, and both slower and stronger than before the operation. We remained with it between two and three hours, and nothing worthy of notice occurred—save that during that time, it had not more than two returns of spasm. By day-break the next morning, I was informed that the child had passed a very quiet night, and that near morning the quill had fallen out. I visited it immediately, and from respiration being performed in a free and tranquil manner, did not think it necessary to replace the quill. The other symptoms also were alleviated, and the child had eaten some thin gruel. On the next day, as was apprehended, manifest signs of laryngitis appeared. The bowels were opened with minute doses of calomel and castor oil; and then nauseating doses of antimonial wine were given, and a narrow slip of blistering plaster, applied on each side of the larynx. The inflammation yielded readily to this treatment; the child eat heartily; and in a few days was decidedly convalescent.

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* It is worthy of remark, that this patient had in her late previous deliveries flooded largely, and on one of these occasions, her life had been despaired of, from this cause; but she lost less blood in this, than in any former accouchment. Whether this were owing to the use of the ergot, I leave to more experienced practitioners to decide: reasoning *a priori*, I should say it was.

My attention was now called to a prolapsus ani, which the mother said she had just discovered. The intestine of a dark chocolate colour, was prolapsed to the extent of some inches, and the nates were highly inflamed. The tenesmus was great, and a double inguinal hernia was soon the consequence of the incessant straining. Notwithstanding these discouraging circumstances, the child continued to mend, and now, three weeks since the operation, is still improving. The herniæ remain, and the prolapsus, though not to so great a degree as at first, occasionally returns.

Thus far the case was communicated to the Medical Society: I now subjoin the sequel of its history.

On the 23d of June, exactly one month after the operation, I was requested to visit the child, as it had been labouring under bowel complaint, and fever for two or three days. I did so, and prescribed for it; but it died on that very night. Permission to examine the body was obtained, and the following were the appearances presented by the parts concerned in the operation:—the external cicatrix was scarcely observable; the opening had been made in the membranous portion of the larynx, between the thyriod and cricoid cartilages, the lower edge of the former having been divided also; the mucous membrane of the wind-pipe was of a pale colour, and a faint white line, running longitudinally, corresponded to the situation of the external cicatrix; no traces of recent inflammation were discoverable.

I have since that time, viz. on the 23d of July, operated unsuccessfully on a patient of Dr. H. C. Glover, of the history of whose case, the following is a brief outline:—The child was taken with lock-jaw on the fifth day: the mother and other female relatives would not consent to the operations being performed, until the sixth, when it was too apparent that death would supervene in the course of a few hours. They then consented, and I operated as in the case above related. No material change was observed: and the child died within four hours afterwards. My belief in the advantage of the operation was however strengthened, although the issue of the case was unfortunate. When a violent paroxysm of spasm occurred, respiration through the natural passages was suspended, and the child breathed through the quill with great force and freedom.

In conclusion, permit me to say a few words in explanation of what has been repeatedly demanded of me—the *rationale* of this practice. By observation and reading, I have been led to the conclusion, that death from hydrophobia is occasioned by asphyxia from frequent closure of the glottis. The obvious remedy of opening the wind-pipe suggested itself: and I had even attempted to institute this practice on a hydrophobic patient, before I was aware that I was treading in the footsteps of a PHYSICK and a RUSH. 'Twas while engaged in preparing proofs and arguments in support of the above opinion, that the case of trismus, first related in this letter, fell under my care. I was forcibly struck by the analogy which it exhibited on the night of the 23d of May, to the closing scene of a case of hydrophobia, just alluded to, and did not doubt that the same remedy was indicated: hence my persevering to operate, notwithstanding the deliberate opinion of the gentleman who assisted me, that the child could not survive the treatment.

This, then, is the theory I am disposed to maintain: in hydrophobia and in trismus nascentium, and perhaps in the similar tetanic affections also, death is the consequence of frequent suspensions of respiration—the patients die from the same proximate cause, as an animal which is drowned, by being alternately plunged into, and drawn out of water.*

Charleston, August 14th, 1830.

ART. VIII. *Irritation of the Spinal Cord.* By WILLIAM HITCH, M. D. of Baltimore.

THE persevering efforts of physiologists have at length succeeded in attaining pretty extensive credit to a few general propositions in relation to the nervous system. That all the operations of the animal economy, from the minutest movements in the secretory process, to the highest effort of reason and imagination, are dependent upon the agency of nervous influence, will, we believe, soon be regarded as an established doctrine in philosophical medicine; and, consequently, the laws of the nervous system are the laws of life. The mechanical and chemical theories have left not a wreck behind—the principle of life, or nervous influence, is acknowledged to be the point to which all observations should be directed. But of the internal nature of this important agent, its properties, mode of acting, or of being acted upon, we are almost profoundly ignorant. A stimulus acts upon an organ—it performs its functions—this we see, but the part borne by this mysterious agent of life in the affair, is totally veiled from view.

The experiments of CHARLES BELL sustained by other gentlemen of his own country, and by ingenious observations and speculation of some of the continental physicians, have enabled us to make a slight advance towards a classification of the very interesting phenomena of the nervous system. In the first stage of their generalization they speak of the cerebro-spinal and ganglionic system; the former, presiding over the intellectual operations, voluntary and respiratory motions, and all the functions of relative life; the latter, controlling organic life, nutrition, absorption, secretion, &c. To the ganglionic system are referred all phenomena of inflammation. The cerebral system is again subdivided by Mr. Bell into symmetrical and irregular; the former, consisting of thirty-one pairs of nerves with double roots, the fifth, sub-occipital, and the spinal, common to all animals, for the purposes of sensation and voluntary motion; the latter, distinguished by single roots, superadded, according to the number and complication of superadded organs, for all the varieties of respiration, speech, and the expression of emotions. In reference to these views, and for its practical utility, the following case of spinal irritation may perhaps be worthy of notice.

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* Bichat's Researches, Part II. Art. VI. Sect. II.

March 15th, 1829, I was called, in consultation, to see Deborah Lynch, ætat. 14. Eight months before, she had lost the use of her superior extremities. They had gradually ceased to be under the controul of the will; and when voluntary motions were attempted, they were not properly executed—the limb always moving the contrary way to that intended. Her physician resorted to the usual treatment, cathartics, tonics, stimulating frictions, &c. with so little success, that four weeks after the appearance of the first symptoms, the inferior extremities also became implicated, and, in a few days, totally paralyzed.

When I saw her, she had been confined seven months, unable to move herself; she complained much of a dull pain and indescribable uneasiness when her inferior extremities were suffered to remain a few hours in one position, and often most earnestly entreated her attendants to move them. It required considerable strength to do this—either to extend them when flexed, or flex them when extended. Any mental disturbance from whatever cause, as the introduction of a stranger of a station in life superior to herself, or any disobliging conduct on the part of her elder sisters, would cause such convulsive agitation in her limbs, as to shake the room in which she lay, and gave her so much pain, that she would most earnestly entreat her mother, or some one near, to press upon them, and stop their motion.

Her extremities were much shrunk from their natural size, of a purplish hue; sensibility much impaired, but her general health had not suffered; her face indeed had the appearance of unusual health; all the thoracic and abdominal organs performed their functions with little interruption during the whole period of her confinement, nor had her disease prevented, or even suspended the full and healthy development of the various changes in the female system incident to the age of puberty.

She was questioned, but gave no information that could lead to a satisfactory diagnosis. Upon examination of the spinal column, however, from whence we supposed the disease most probably emanated, we found the spinous process of the fifth cervical vertebra, inclining to the right, unnaturally depressed, and that pressure on the lateral portion of the vertebra was painful.

Upon again questioning her, whether she had not been injured in this part, she now recollected, that about three years before she had lost the use of her limbs: an elder sister, upon her refusing to carry a bag of sumach berries which they had gathered, threw it with considerable force across her neck, by which she was prostrated to the earth. The shock gave her considerable pain, which had been continued at intervals up to the time of her confinement, but since that time, the pains in her inferior extremities having been so much more intense, the uneasiness in the neck, and the injury sustained there, had been forgotten.

Having now ascertained the seat of the disease, to excite a permanent counter-irritation, we applied a seton immediately over the affected part. A strip of linen an inch wide was introduced, and on returning five or six days after, we found some granulations shooting out of the wound—the discharge of matter was trifling. For the purpose of procuring a discharge more copious, and for the removal of the granulations, we caused the strip of linen to be wet, several times a day, with a pretty strong solution of the sulphate of copper, to be continued until the granulations were destroyed, and the discharge of matter become more copious. No alteration appeared in her condition until the expiration of three months, when the superior extremities returned gradually under the controul of the will, and have since remained free from the slightest muscular irregularity; but she was yet incapable of giving the smallest motion to the inferior extremities. Encouraged at our ends having been thus far accomplished, the superior extremities having returned under the controul of the will, and rapidly approaching to a perfectly healthy condition, the consummation of which required only the stimulus of action, we felt exceedingly anxious to try a seton about the lumbar region. To this the patient positively objected—the seton in the neck, she said, had been so exquisitely painful, that she would not endure another, even if assured of being restored thereby to the use of her inferior limbs. Determined not to abandon the case after gaining so much, we requested her to let us place a plaster on her back, to which she readily assented. The plaster was applied, charged with the potential cautery, and remained twelve hours. On its removal, the impression made seemed considerable. The part was dressed with unguentum basilicon, which was suffered to remain until the next day, when we found a fine deep ulcer extending six inches along the spinal column, and one inch wide; this ulcer discharged copiously for six weeks, and at the expiration of three months, the patient found no difficulty in walking, has since remained in good health, and can undergo more bodily exertion than any of her sisters.

Baltimore, August 16*th*, 1830.

ART. IX. *Case of Ruptured Urethra.* By S. J. STRATFORD, Esq. Member of the Royal College of Surgeons, London.

I WAS called to Jesse Dean, a carpenter by trade, on the 13th of August last, who had met with an accident during the course of the day: whilst passing over an unfinished cellar, his foot slipped, and he fell upon a piece of wood that crossed it, alighting upon his scrotum and perinæum. He felt considerably shaken, to use his own terms, in consequence of the fall; saw some blood flow from the extremity of the penis, but this soon stopped. He continued his work, and in about two hours attempted to make water, which agreeable with his sensations he accomplished, but he was greatly surprised to find that no urine passed from the extremity of the penis; the act gave him great pain, accompanied with an intensely burning sensation: now he found the scrotum swelled and dark-coloured. In about two hours he again endeavoured to pass his urine, but similar symptoms evincing themselves, he became alarmed and sent for me. From all the symptoms I became satisfied that the urethra was ruptured; the scrotum was considerably swelled, (larger than the doubled fist,) dark-coloured as if from extravasated blood, while it seemed to give a crepitating feel when handled. I attempted to pass a catheter, but could not get one into the bladder. I now made an opening through the lower part of the scrotum and perinæum, taking care to divide the external fascia, and as I judged at the time about opposite to the seat of the injury. It being late at night, I left him, proposing on the morrow to enlarge the wound, and find the lower opening of the urethra, and introduce the catheter into the bladder.

August 14th. The swelling had considerably subsided, the urine escaping slowly by the wound in the perinæum; the scrotum had become lax and more natural in its appearance, a state that deceived the friends, who judging that I was about to perform an unnecessary operation, they called another surgeon; he likewise overruled the operation, flattering himself that he could introduce the catheter, but this was attempted again and again without success. The patient was left for the present.

August 15th. The condition of the patient was materially changed; the scrotum was found greatly enlarged, distended to the utmost, red, and painful, while the urine was evidently extending up the inguinal canal into the abdomen, which even now felt painful to the touch. The urine had ceased to escape from the wound, which had become agglutinated during the night, the man having emptied the bladder several times. I now repeatedly urged the operation I had previously proposed, and about 5 P. M. was permitted to undertake it. I made a deep incision through the distended scrotum down to the urethra, which I found completely torn across, and the corpora spongiosum and cavernosum urethræ divided, and separated to some distance, so that I could put my finger between their two extremities. During the operation nearly a pint of fluid must have escaped, every cell of the loose texture of the scrotum was distended with urine. After a very diligent search, I failed to discover the lower extremity of the urethra, in consequence of the diseased condition of the parts, but I satisfied myself that the opening was made to such an extent that the urine would flow directly out, and not be again infiltrated into the cellular tissue: also fearing from the state of the parts, that there must be most extensive sloughing, I was not now so anxious to introduce the catheter, knowing that its presence might aggravate the evil.

16*th.* The water came freely from the wound, but the patient had experienced considerable fever, and several very severe fits of shivering; the countenance was shrunk, cadaverous, and extremely dejected.

17*th.* The patient felt much better: fever diminished; the swelling of the scrotum had considerably subsided, while the warm poultices and fomentations seemed to have a very beneficial influence; pretty free discharge of thin matter from the part.

20*th.* Continues to improve rapidly; the fear of sloughing removed, the wound looks healthy. Slight stimulants employed locally; bark and wine allowed.

22*d.* The wound very much contracted, is beginning to cicatrize. I attempted to introduce the catheter into the lower extremity of the urethra, but could not find it; the instrument passed into a sinus, which I judged it proper to divide; in doing so I must have touched the corpus cavernosum, as it bled pretty freely; the hæmorrhage, however, was stopped by the application of ice.

23*d.* The patient felt weak, but the wound seemed improving.

24*th.* Very much better, the wound contracting fast. I watched when the urine flowed from the bladder, and managed to get a directory into the urethra; I then passed a silver catheter through the extremity of the penis, and placing it in the groove of the directory, pushed it along it into the bladder.

25*th.* The urine has flowed freely through the catheter, but very little through the wound, which is rapidly contracting, while the hardness of the scrotum has also subsided.

27*th.* No urine passes by the wound; the catheter cannot be felt in the wound, it is covered with granulations.

30*th.* Removed the catheter, cleaned it, and re-introduced it.

September 12*th.*—The wound nearly healed; I removed the catheter, and passed a metallic bougie, (eleven size,) the largest that would enter the external meatus; this was introduced night and morning, while it was soon accomplished by the patient himself.

20th. The wound perfectly healed; the patient goes about his usual employment; makes water with his usual facility, and expels the last drop without the least difficulty.

The above is a good illustration of one of the varieties of accidents that are likely to occur in the perinæum. These differ greatly in their extent and importance, but when systematically arranged, are easily understood:—1st. A blow upon the perinæum may be so trifling as to produce but a slight effusion of blood, and consequent discolouration of the parts. 2d. Combined with this, the lining membrane of the urethra may be torn, and more or less hæmorrhage be the result. When this is small in extent, the bleeding from the extremity of the penis soon subsides, but if it be considerable, the blood may flow in a full stream, causing great terror to the patient, who expects from it the most terrible results: even this, however, is comparatively harmless, for the blood soon coagulates, and the hæmorrhage stops of its own accord, or the clots may be expelled long and string-like, or bolted out in the form of a complete cast of the urethra the first time the patient makes water. The bleeding may even return, but it is easily stopped by compression: still, however, the case is simple, for the urine flows freely along the urethra. 3d. The urethra may be torn completely across, and the upper extremity contract, or in some degree collapse, and the distended bladder being emptied, the urine escapes into the cellular tissue of the penis, which is soon immensely swelled, of a dark colour, and very painful; this condition soon spreads to the scrotum and perinæum, and even to the pelvis and abdomen, causing almost certain death. 4th. The corpora spongiosum et cavernosum may be equally divided with the urethra, when the urine always escapes into the cellular tissue of the scrotum, before it implicates that of the penis. 5th. The urethra may be divided in many different situations, causing some variety in the symptoms. 1st. It may be injured anterior to the scrotum, which, however, seldom occurs; 2d, immediately behind this part, and even with the symphysis pubis, which seems to be the most frequent; while it may, in some degree, be caused by the urethra being crushed upon the ramus of the pubis, and which I suspect was the case in the above-mentioned patient; 3d, in the perinæum, but anterior to the bulb; or 4th, the urethra may be completely separated at the neck of the bladder.

The treatment of the first varieties of these accidents must obviously be extremely simple, we have but to guard against inflammatory action. But the moment the surgeon finds that the urine is extravasated into the cellular tissue, he knows the case to be full of danger, when the patient feels the sensation of urine passing, but finds that none escapes, while he observes the scrotum and penis to become swelled and painful, and when that swelling is soft, and gives a crepitating feel, he may be assured that the urine is flowing into the surrounding parts, that these parts will soon slough—that the testicles even may be laid bare and exposed, while the skin of the penis and perinæum is greatly destroyed. It is indeed a dangerous case, and depends plainly on the knowledge and discernment of the surgeon; if he make free and sufficient openings through the skin and fascia down to the injured urethra, he may at once convert this dangerous accident into a simple case in surgery. But if, finding that the patient cannot make water, and that he, (the surgeon,) cannot introduce the catheter, he shall attempt to tap the bladder, how terrifically does he augment the patient's danger! this I have known done. After spending several days in vain consultation, that operation was improperly performed, in the meantime such considerable sloughing had occurred that the urethra was laid bare, and now gave a free exit to the water: and after all this extent of injury, the parts again healed kindly, proving that but a few incisions were wanting to place the patient in comparative safety. Indeed, the effusion of urine in such cases is what we have most to fear, and if we know our duty, we shall, by freely cutting the parts, save them from destruction: in such cases delay is not tenderness, but cruelty. It has been said that it is the acrimony of the urine that causes the sloughing, but although that may have some influence in producing the subsequent inflammation, I suspect that it is the complete distension of each cell, and consequent compression of the small vessels which serves to nourish the part, that, preventing the natural and necessary circulation, causes its death. Then here is another cogent reason for giving egress to this fluid whenever extravasated, at the same time we take off all constriction of the part.

When called to such an accident, we endeavour to introduce the catheter, and if unsuccessful, we provide a free passage for the urine, by cutting down upon the injured part, and endeavouring to find the lower extremity of the urethra so as to pass the catheter into it; and if this is accomplished, it removes all danger: if, however, this cannot be done, we must wait until the state of the parts will permit us to see from whence the urine flows, and then by means of the director, we shall, in all probability, succeed in getting the catheter into the bladder.

Troy, New York, Sept. 1830.

REVIEWS.

Art. X. *Grundriss der Physiologie.* Von Dr. Karl Asmund Rudolphi, Prof. d. Med. und Mitgl. d. Königliche. Akad. d. Wissenschaften. Erster Band, Berlin, 1821. Zweiter Band, Berlin, 1823. Dritter Band, Berlin, 1828.

Elements of Physiology. By Dr. Charles Asmund Rudolphi, Professor of Med. &c. Berlin, Vols. I., II., and III., 1821—1828.

EVERY one who feels the slightest zeal for the improvement of his profession, must experience the highest gratification when he looks around and perceives what it has already achieved—the rapid advancements which it is daily making—and reflects upon the high destinies which await it. Medicine has already been divested of the mysticism which for so many centuries served to obscure its principles; the domain of pathology no longer consists of an assemblage of vague hypotheses, but is based upon principles as immutable as truth; and physiology, which could scarcely be said to have had an existence before the time of the immortal Haller, has, within the space of a few years, acquired a degree of improvement and elevation, which renders it a proud monument of human ingenuity and industry. In this important achievement the resources of different nations have been contributive, and if the exertions of one have availed more than those of another, all have just reason to be proud of the share they have individually performed, and the splendid consummation they have conjointly brought about. We propose, on the present occasion, to call the attention of our readers to the labours of Professor Rudolphi, of Berlin, in this important cause: a name already signalized in science, by his masterly researches upon the subject of intestinal worms, and other works of the highest merit.

Physiology is divided by Professor Rudolphi into general and special. General physiology he divides into the following heads:—"*a.* Anthropology.—*b.* Anthropotomy.—*c.* Anthropo-chemistry.—*d.* Zoonomia."

Under the head of special physiology are included—"*a.* Sensibility.—*b.* Motility.—*c.* Nutrition.—*d.* Generation."

The utility of such an arrangement is too manifest to require any particular exemplification. It is, indeed, only by pursuing such a course that the science of physiology can be unfolded and displayed in all its natural richness. When examined in these extensive relations, it does not merely present an exposition of the uses of the organs, but displays itself under the more exalted aspect of the science of organized nature. The functions of the organs are so intimately dependant upon each other, that none of them can be properly performed except by the perfect co-operation of the whole, and we can only render the science of life contributive to valuable and important conclusions by considering it in these relations. The mere examination of the functions in an isolated manner, can only tend to bewilder us in vague and hypothetical conceptions. In this respect modern physiology has become particularly rich in important conclusions, since, by examining the properties of the organization in its general, as well as in its special relations, we are enabled to deduce from them valuable facts and important inferences, which, were we to confine our attention to the special consideration of the functions individually and separately, would ever remain concealed from our penetration. General physiology, as well as general anatomy, may be considered as one of the results of modern improvement, as it is only within the last half century that it has attracted much attention.

By anthropology is meant not only the consideration of those characters which are proper to man, and serve to distinguish him from all other beings, but also the similarities and dissimilitudes between him and the rest of creation. Our first object is, therefore, to determine his position in the scale of living beings, and to point out his relations with the other inhabitants of the earth.

1. *Difference between Man and Animals.*—Man is, from the physical characters of his organization, classed with the mammalia, at the head of which he is placed; but he approaches, in many of his characteristics, to the ape, hence the old observation—

> "Simia quam similis turpissima bestia nobis."

This approximation of man to the monkey tribe has, however, been greatly exaggerated; for, although there are strong points of resemblance, those of contrast are equally well marked. One circumstance that has contributed to give currency to this belief, is the frequent stories of ourang-outangs, which have been said to approach the human subject in the characters of their organization, but which, the results of modern observations has rendered almost certain, are nothing more than young pongos. In determining, therefore, the difference between man and the monkey, we must examine both, after they have attained their full development, and not suffer our opinions to be founded upon accidental, physical, or moral attributes.

One of the most constant and manifest differences between man and animals in general, as well as between him and the monkey, is his character of a rational being; the latter only possessing instinct, and being altogether incapable of forming conceptions even of a general nature.

Man alone, amongst all the mammalia, walks in an upright position, for which the conformation of his pelvis, and other parts of his skeleton, are peculiarly adapted. Only a few animals resemble him in this particular, and they only present it as a temporary condition, for which the arrangement of their organs is not suited, whereas it is natural to man, and is presented by him in all ages and countries, even in the lowest state of barbarism.

The upright position, which is peculiar to man, only requires that he should have two feet articulated in such a manner as to admit of the free motion of the body upon them, by means of the action of strong muscles. The arm, moreover, presents a character peculiar to him: in consequence of the peculiar arrangement of the articulation of the shoulder, it admits of more rapid, and greater latitude of motion, than in any other animal. He has, in addition to this, a hand constructed with great wisdom, and fingers which are tactile in an exquisite degree.

In man, the occipital foramen corresponds to the centre of the base of the cranium, while in animals it is situated so far back as to throw the greater part, or the entire head, in front of the axis of the vertebra.

The brain in man, as the intellectual organ of a rational being, presents a preponderance of volume over the medulla spinalis; and the nerves, together with the organs of sense, possess a due proportion in their degree of development.

The large size of the brain makes the volume of the cranium preponderate over that of the face, and thus renders the facial angle more obtuse in man than in any other animal. His lower jaw is, on the other hand, shorter; the inter-maxillary bone does not exist, except as a mere rudiment in the fœtus only, and his chin projects forwards.

Man is not born with any natural weapons of defence, but forms to his wants, and by his own care and industry, such as may be necessary for his safety. He is almost daily making new discoveries; securing new acquisitions to the sense of human happiness, and is, in every sense of the word, king and lord of creation.

Of all animals, man alone is endowed with the faculty of speech, by which he is enabled to express his desires and aversions, and when, by any cause, he is deprived of the faculty of employing articulate sounds, he acquires a kind of language of gesticulation, or pantomime, which he makes supply most of the purposes of verbal language.

Man is capable of subsisting in every clime, and under every sky;—his race, therefore, extends with much greater facility than that of any other animal, and degenerates less under the influence of situation.

Animals rapidly attain the full development of their organs;—become early endowed with the venereal propensities, and acquire the full possession of all their peculiar attributes. Man, on the contrary, is characterized by a long childhood and youth, and is tardy in reaching the state of manhood. He is brought into the world destitute of knowledge, but is throughout the entire period of his existence extending the bounds of human wisdom:—his mind is never satisfied with its acquisitions, and in the blessings of a future state, he hopes for a still further extension of his intelligence. He is, indeed, characterized by an unquenchable desire of a knowledge of all that is in heaven and earth: a disposition to pride himself on the high destiny which he alone, of all creation, is capable of attaining; an impatience of contradiction that brooks no controul. Animals, on the other hand, can be influenced by the fear of punishment, to certain acts, but they possess no ideas of justice, nor are they sensible of the principles of either virtue or vice.

From all these considerations, it appears, that man is distinguished from the whole animal creation, by his being an intellectual and moral being—lord and king of creation in this life, and confident of a still higher destiny in the world to come.

2. *Varieties of the human race.*—"The entire human race," says Professor Rudolphi, "distinguished from the rest of the animal creation, by the traits of character just detailed, belongs to one genus, under which, however, are included a number of species and varieties, more or less different from each other, either as regards size, the arrangement of the body in general, or of some of its parts, especially the cranium and face, in the structure or colouration of the skin and hair, and above all, in their comparative capacities of perfectibility, which are not possessed in an equal degree by all."

Many of these characters are more or less under the influence of climate, and the operation of other causes connected with the habits and modes of life which exist amongst different nations. Yet there seems to be a radical difference, which cannot be ascribed to the agency of these causes. The height, especially, seems to be influenced by climate, inasmuch as we find a marked difference between those who inhabit warm, and those who dwell in the ice-bound regions of the arctic circle. The Patagonians attain the greatest height, their average stature being from six to seven feet, while the most diminutive are the Laplanders, Esquimaux, and the dwarfish inhabitants of the polar regions, who are scarcely five feet in height. Indeed, these realms of eternal snow seem to be alike inimical to animal and vegetable existence; for we not only find man under these inclement skies, stinted in the development of his organs, but the barren earth scarcely supports the dwarfish lichen, which affords but a miserable subsistence to the several creatures destined to endure the hardships of these unfriendly climes.

A much more important point of difference exists in the configuration of the body, which, when accurately considered in connexion with other traits, enables us to establish certain radical and well-founded divisions of the human race. The difference of configuration observed in the head and face is especially well-marked; as for example, in the comparative prominence of the forehead; its width and height, the degree of its inclination backwards; the projection of the chin forwards, and the perpendicular, or inclined direction of the alveolar processes. These varieties are not merely observed after the organs have reached their full growth, but are more or less manifest from the earliest months of the fœtal existence. To these must be added the comparative separation between the eyes, their prominence, the configuration of the nose and chin, the contracted eyelids, as in the Mongola, or the protuberant lip, as in the Æthiopian.

"The colour of the skin is, in some of the races white, in others brown, red, and black; even these present numerous shades or modifications. This difference of colour is not the result of accidental circumstances, as has been erroneously supposed, but is dependent upon a radical difference in the organization of the skin, which has existed from the earliest periods of the world. Corresponding varieties are observed in the hair. In the inhabitants of the north of Europe, it is of a light yellow colour, and of a fine texture—brown or black in the south, and much coarser. With the Hindoos, it is long and fine—with the American, long, thick, and glossy, and in the Æthiopian, black, coarse, and crisped."

Differences not less striking are observed in the comparative susceptibility of mental culture, possessed by the several races and varieties of man. Modifications, in this particular, are quite as numerous as those of colour, stature, configuration, and the other characters which have been enumerated;—and what is still more interesting, is, that when we examine the several varieties of mankind, we find a constant and intimate correspondence between the development of the brain, and the activity of the intellectual powers. If, with Professor Rudolphi, we make four fundamental races or varieties of man, "the European, Mongolian, American, and Æthiopian," we shall find, that as regards intellectual capabilities, the European stands highest, from which there is a gradual diminution, until we arrive at the Æthiopian, who possesses the smallest capacity for mental culture, and who, in the meanness of his intellectual powers, is degraded almost below the level of human beings. It has been correctly conjectured by Lawrence, that—

> "The retreating forehead, and the depressed vertex of the dark varieties of man, render it extremely doubtful whether they are susceptible of the higher destinies; whether they are capable of fathoming the depths of science;—of understanding and appreciating the doctrines and mysteries of religion."

It will be seen that Professor Rudolphi rejects the Malay race, which he does not think constitutes a proper variety, but supposes it to be made up of an admixture of others. We shall not follow the author through his description of the peculiarities which serve to distinguish the different races. They have been so often detailed in works on the subject, that they must be familiar to most of our readers. We shall therefore pass on to the examination of the second part of the first volume, which treats of

General Anthropotomy.—By this term Professor Rudolphi designates the consideration of the general characters of the organization, or the properties of the several tissues of which the entire organization is composed. It is therefore synonymous with general anatomy, employed by Bichat, and in much more general use.

The proper element of all animal organization is, according to the author, a peculiar, delicate, homogeneous substance, susceptible of taking on different forms or modifications. In some animals, which are the most simple in their organization, it does not assume any other form, but in those whose organization is more perfect, it takes on several forms and modifications, constituting what are called tissues, and it is by the various combinations of these tissues, that the several systems or organs are formed. Our author, therefore, very correctly divides the tissues into simple and compound, or perhaps more correctly into simple tissues, properly so called, (*"partes simplices,"*) and into systems or organs, formed by the assemblage of two or more of these tissues, *(partes similares.)* The propriety of such an arrangement has been for a long time sensibly felt, and was acted upon by Haller, who considered the cellular, muscular, and nervous, as primitive or simple tissues, and all the rest as compounds of these. Professor Rudolphi several years ago devoted considerable attention to the subject, which he elucidated with his accustomed ability in his work, "De Partibus Similaribus," Gryph, 1809, 4to. In the work before us, he makes the simple tissues, (partes simplices,) consist of the cellular, horney, cartilaginous, osseous, tendinous fibrous, vascular fibrous, muscular fibrous, and nervous fibrous. The compound tissues or systems, (partes similares,) are, 1st. The vascular, which is divided into general and special, the first including the arteries, veins and lymphatics, the latter, the excretory ducts of the glands, &c. 2d. The membranous is also divided into general and special, including under the first head, the serous, mucous, membranous fibrous, dermoid, and epidermoid. Under the special, the membranes of the ovum, the tunics of the eye, brain, &c. 3d. The viscera. And 4th. The glands.

It is not our intention to enter into any particular remarks upon this arrangement. Like all other attempts, having the same object in view, it has its advantages and defects, but may nevertheless be considered sufficiently accurate for all useful purposes. We cannot concur, however, in the propriety of separating the fibrous membranes from the other fibrous tissues possessing the same properties except in configuration. Nor do we think that the membranes of the brain, ovum, eye, &c. can be separated from the other tissues with which their properties are identical. Other objections to Professor Rudolphi's classification present themselves, but we do not think it a matter of sufficient importance to require further comment.

After having arranged the several tissues and organs in this manner, he goes on to consider their individual properties, which he does in a somewhat brief but satisfactory manner, his descriptions being in general accurate, embracing most that is requisite to the student, divested of those minute details with which it is less important he should be acquainted. We should be pleased to follow him through this examination, but our limits will not admit, nor is it necessary we should do so, as we do not meet with any thing important which is not contained in most of the works on general anatomy. The subject of general anthropotomy is concluded by some very interesting remarks relative to the symmetry of the organs, and the relations between one side of the body and the other. We must, however, pass them over to examine the subject of

Anthropo-Chemistry.—The subject of animal chemistry is one of much importance to the physiologist and pathologist, yet it is encumbered with so many difficulties, that notwithstanding the numerous efforts which have been made to illustrate its principles, we possess but very imperfect and unsatisfactory information relative to their details.

Of the ultimate chemical elements of the solids and fluids of the body, we know but little. It is however highly probable that they are not numerous, and that the several modifications observed in the composition of the different parts, are altogether ascribable to the different proportions in which they combine with each other. The following are given by Professor Rudolphi as the principal simple chemical elements which enter into the organization of the human body: "oxygen, hydrogen, nitrogen, sulphur, phosphorus, carbon, iron, sodium, potassium, calcium, talcium or magnesium, and chlorine." To this list, others might doubtless be added, amongst which we may mention silicon, fluorine, &c. the last of which, in form of fluoric acid, exists in small quantity in combination with lime, in the enamel of the teeth.

These elements do not exist in the same proportion, a few of them constituting the greater part of the materials of the organization, while others only form a very small part. By their several combinations, however, several proximate principles are formed, which, by the variable proportions in which they exist in the solids and fluids, serve to impress upon them numerous modifications. These general organic elements are, according to our author: "gelatine, albumen, fibrine, mucus, serum, adeps, and lactic acid, the last, according to Berzelius, (Djurkemie, I. 430,) constituting a part of the solids and fluids, in which it exists in either a free or combined state, especially in the blood, urine, milk, marrow, and even the muscles."

The observations on the subject of animal chemistry are highly interesting, and are drawn from the researches of the latest authors, especially from those of John and Berzelius, whose authority on these subjects is superior to that of any others. The same observations will apply to the next subject brought under discussion; the general character of the compound materials formed by the assemblage of those just enumerated, as the "blood, lymph, membranes, hair and nails, cartilages, bones, fibrous tissues, muscles and nerves," the chemical characters of each of which are examined with much attention and ability. We must, however, pass over all these considerations to topics of a more interesting character. The next subject, therefore, that we shall examine, is

The general Chemical phenomena which take place in the Human Body.—"The general chemical changes incessantly going forward in our organs, give rise to many phenomena, which are so strongly marked, that we might, on a superficial examination, be induced to regard them as a portion of the organization itself, rather than the product of a general chemical process. It is from this cause that the organized solids have been supposed to be blended with certain imponderable substances, as caloric, (thermogenium,) light, (photogenium,) and electricity, (electrogenium.")

"Heat," continues our author, "seems to be a property common to all organized bodies, without exception; in plants, however, it is so fluctuating, and so much under the influence of the temperature of the atmosphere, that some naturalists, amongst whom may be mentioned Nau and Treviranus, have denied that it appertains to vegetables. But the observations of Hunter, Schöpf, Solomè, and Hermstädt, seem to prove beyond contradiction that it does appertain to vegetable as well as to animal life. If, in the midst of winter, the trunk and roots of a tree do not present any difference in their temperature from the atmosphere, we find the same thing in some animals, which spend a part of their time in a state of torpidity, in which frequently no traces of animal heat can be detected, while they remain in this quiescent and passive state of existence. We moreover find vegetables endowed, in a high degree, with the faculty of resisting the influence of the temperature of the atmosphere—a property which is in proportion to their vigour, and which is extinguished with their death.

"Some plants generate a considerable quantity of heat during the act of efflorescence—a fact which was first observed by Lamarck, in the *Arum italicum.* Huber, moreover, instituted an extensive series of experiments, in the Isle of Bourbon, upon the *Arum cordifolium,* from which he discovered that the spadices, when the temperature of the atmosphere was 21° Reaumur, generated a temperature of 45° Reaumur. The same thing was observed by Bory de St. Vincent to take place in the *Arum esculentium.*"

Animals possess the faculty of generating heat in very different degrees. The *vermes,* of Linnæus, crustacea, a part of the insect tribe, the fish and amphibiæ, only possess it in a very feeble degree. The more perfect insects, the mammalia and birds, have it very strongly developed, and in man it is as great as in the largest land mammalia.

Of these, the intestinal worms especially manifest a great dependance upon the surrounding medium for their temperature. Hence it is we frequently find, that when exposed to cold water, these animals become at once torpid, and evince no signs of life; a condition, however, from which they may be again resuscitated by exposing them to a little warm water. It has, moreover, been observed by Professor Rudolphi, *(Historia Entozoorum Anat.* 1809, *Tom.* 2.) that they often assume this torpid state after the death of the animals which they inhabit. Yet, however much such animals are dependant upon the medium in which they lived, they possess, within themselves, a power of maintaining, for a time, a temperature above that which surrounds them. **Hunter** put some earth-worms into a glass vessel, when the temperature of the atmosphere was 56° Fahr. and, placing the thermometer amongst them, he found that the mercury rose to $58\frac{1}{2}$°, showing a difference of two degrees and a half, *(Animal Œcon.* p. 117.*)* In the crustacea this difference is much more considerable. In the common crab, *(Astacus fluviatilis,)* Professor Rudolphi found, that the thermometer placed between the muscles of the tail, indicated a temperature of 10° Reaumur, that of the apartment being only 5°. In the fish it presents a considerable variety, being lower in some than that of the water, while in others it is several degrees higher. It is related in the voyage of **Verdun**, **Borda**, and **Pingré**, Paris, 1778, that the thermometer, placed in the stomach of a living stock-fish, indicated a temperature of $5\frac{1}{4}$°, at the same time that another, placed in the open air, stood at 11°. (**Treviranus**, Biologie, band. 5.) **Perrin**, however, found the stomach of the Raja to present a temperature of 22°, when that of the water was only $19\frac{5}{9}$°, and results, differing only in degree, have been obtained by others. In the *Torpedo marmorata*, Professor Rudolphi observed that the thermometer, placed in the pericardium, stood at $18\frac{1}{2}$°, while the temperature of the water was 18°, therefore indicating but a very trifling difference in the heat of the animal and the medium in which it lived. In the frog and land turtle, according to **Martine**, the internal temperature is greater by 5° than the surrounding medium; and **Hunter**, **Krafft**, and others, have observed a difference equally striking in the Cyprinus, Raja, &c. (Treviranus, Biologie, Band. 5. p. 25.)

The birds possess this faculty of generating animal heat in a much higher degree. In this respect, indeed, they must be placed above the mammalia, as many of these indicate a temperature considerably above that attained by even the largest animals. The ordinary temperature of man is 96° Fahr. or 28° Reaumur, and in dogs, cats, sheep, bullocks, and hogs, it was found by Martine to vary from $30\frac{2}{9}$° Reaumur, to $30\frac{5}{9}$°, which is probably the highest temperature presented by the mammalia. In the birds, however, it was found by **Pallas** to be considerably greater. On a warm day, in July, the lowest temperature observed by him, was $31\frac{4}{9}$°; the highest, $35\frac{5}{9}$° Reaumur, or 111° Fahr. Thus, in "the *Vultur barbatus*, it was $33\frac{5}{9}$°; *Falco ossifragus*, $32\frac{2}{9}$°; *Nisus*, $33\frac{7}{9}$°; *Lanarus*, $34\frac{3}{9}$°; *Palumbarus*, $34\frac{4}{9}$°; *Fringilla arctica*, $35\frac{2}{9}$°; and the same in the *F. linaria*, the *Parus major*, and the *Hirudo lagopus*, &c."

But while this character appertains to all animals in common, from the highest to the lowest, it does not, as has been already shown, exhibit the same regularity throughout. The lower orders, in which animal heat is but sparingly generated, it has been seen, are indebted, to a certain extent, for their temperature, to the medium in which they subsist. In man, however, this law does not hold good, inasmuch as when in a state of health he preserves the same temperature in every climate, and under every sky—as well under the heat of summer, as the frosts of winter—the parching sun of the torrid zone, and the eternal snows of the arctic regions. Under all these circumstances, and in all these situations, the thermometer placed in the mouth constantly indicates a temperature of 29 to 29½° Reaumur.

This circumstance clearly proves his independence of surrounding circumstances for the warmth which enlivens and invigorates his several organs, and that it owes its origin to some change, either chemical or vital, constantly going forward in the organization.

These considerations naturally lead us to inquire into the sources of animal heat—a question upon which physiologists have been much divided in sentiment, and which still remains undetermined. Professor Rudolphi only considers the subject in a cursory manner in the first volume, leaving the principal details to be examined in connexion with the function of respiration. He seems to think that it owes its origin "to changes taking place in the materials of the organization, occurring for the most part within the cavity of the thorax, and that it is in no manner dependent upon nervous influence." In opposition to the opinion which refers the generation of animal heat to the agency of the nervous system, he adduces the following arguments, which, it must be confessed, have much weight, yet we do not consider them conclusive:—

> "That there is no relation between the nervous system in different animals and their temperature; that if this were the case, man should present the highest degree of animal heat, because his nervous system presents the greatest degree of development. The mammalia should, for the same reason, present more than the birds, these but little more than the amphibiæ, and the insects should have a temperature far below that of the fish, which does not hold good in any one of the instances adduced."

The author next makes some observations upon the electric faculty, possessed by some animals, which, though interesting, we cannot here detail: the description of the apparatus by which they are enabled to exercise this wonderful power, will be found in the Periscope, department Anatomy.

The fourth book treats of the subject of *Zoonomia.* By this term our author implies the general manifestations of life, and its several modifications, or properties.

All organized bodies, whether animal or vegetable, are endowed with one fundamental property, which appertains to them in common: incitability, (erregbarkeit,) or the power of acting under the empire of stimuli, and thus giving rise to reaction, incitation, or excitement. But while this incitability is common to the entire organization, it bears different appellations, according to the particular tissue in which it is manifested. Thus, in the membranes, it is called contractibility, in the muscles irritability, in the nerves sensibility, &c. These several properties, which have been by some considered as altogether distinct, merely imply a susceptibility to be impressed by external' agents, or as it has been expressed by some physiologists, a state of receptivity, which must be distinguished from the "*vis Psychica*," or that power which impresses upon the organization this receptivity, and which is the vital principle itself, of which we know nothing, except from its effects, but which must not be confounded with the nervous power, notwithstanding it approaches nearer that principle, as Professor Rudolphi correctly observes, than to any of the other properties of the organization.

Part II. *Special Physiology.*—After passing in review the several subjects which appertain to general physiology, Professor Rudolphi enters upon the consideration of the special details of the science. This forms the commencement of the second volume, which we shall next proceed to examine, in the order pursued by the author himself, commencing first with the nervous system. This, according to him, consists, "on the one hand, of the great central organ of the nervous system, or the greater and lesser brain, and the spinal marrow, and on the other, of the nerves which are intimately connected with the parts just mentioned."

The central part of the nervous system is more strongly developed in man than in animals, while the nerves are small in comparison to the brain and spinal marrow. But it is not only in the relations between the brain and nerves that we perceive this difference: if we examine the proportions between different parts of the brain and spinal marrow, we shall find them exhibiting varieties which are almost endless as regards their comparative development. In man, the cerebrum is voluminous, and is well developed in every direction—in height, as well as in its transverse and longitudinal diameters, while the cerebellum is comparatively small. The anterior part of the cerebrum is also much fuller and more prominent in man than in animals, while in the latter the cerebellum is the part which presents the preponderance of volume, compared to the proportions existing between the other portions of the brain. It is this full development of the anterior lobes of the brain which imparts to man his noble and intellectual forehead, his commanding facial angle, and lofty air of contemplation divine, while in animals we find the forehead low and retreating, and the facial angle consequently diminishing, in proportion to their degradation in the scale of beings. In applying these principles, however, care must be taken not to confound the development of the cranium with that of the brain, inasmuch as in many animals the frontal sinuses are so full as to convey the appearance of a full and rounded forehead, when, in reality, the corresponding portion of the brain is small. In many of the birds, moreover, the air-cells, which exist so abundantly in the cranial bones, impart to some portions of the head a degree of prominence, which is by no means in relation with the corresponding lobes or convolutions of the brain. The greater development of this organ in man than in animals, gives rise to a proportionate preponderance of volume, or rather extent, of the corpus callosum, while its greater height removes this body more from the upper surface of the organ, and consequently leaves a greater extent of the two hemispheres to be separated by the falx.

As regards the arrangement of the medullary and cortical substance, of which the brain is composed, our author does not entirely agree with GALL and SPURZHEIM, nor does he concur with TREVIRANUS in believing in the existence of laminæ interposed between these two substances. In the first place, our author maintains, contrary to the assertion of Gall, that the convolutions are merely formed by the pia mater penetrating the substance of the brain in company with the vessels—a sentiment which has also been adopted by Professor TIEDEMANN, of Heidelberg, and against which we cannot perceive any very conclusive objection. But when he objects to the conclusion of Gall and Spurzheim, that the brain may be unfolded so as to represent a kind of membranous sac, he is incontestibly in error. "I have attempted," says he, "by all the means indicated by Gall, to effect this unfolding of the brain, but have always found that it could not be accomplished except by violently lacerating the parts, and that the convolutions can never be unfolded in a natural manner, as he pretends." In reply to this, we think we may, with Dr. Gall, apply to our author the language of VICQ D'AZYR, "that to observe correctly in anatomy, something more is requisite than eyes." We consider it our good fortune, that in 1825 we had an opportunity of witnessing at Paris several dissections of the brain made by Dr. Spurzheim, in which he succeeded in this act of unfolding the organ to our entire satisfaction. Since that time we have perhaps examined more than a hundred brains, partly with that view, and whether we owe it to the excellent instructions which we received, or to some other cause, certain it is, that we have been more successful than Professor Rudolphi, and have been seldom disappointed in our attempts when the organ has been in good condition, and we have went to work with sufficient patience.

The following is our author's description of the order in which the medullary fibres expand to form the brain.

> "From the spinal marrow they pass in several directions to the pons varohi, from whence they extend into the thalami, the corpora striata, and the lateral masses of the cerebrum, into which the horizontal fibres of corpus callosum also extend; and from the lower face of this, the laminæ which form the septum lucidum descend to the fornix, which latter forms numerous connexions with the other parts of the brain, by means of its several appendages or limbs, (schenkeln.) If we unfold the cerebellum, which is peculiar in its formation, we shall find that it is composed of several transverse fibres from the pons varohi, of other fibres from the spinal marrow, and is connected with the cerebrum by means of fibres and laminæ. Finally, if we examine the tubercula quadrigemina, and their dependancies, the pineal gland, with its prolongations, the appendage of the cerebrum, &c. we shall observe an interlacing of fibres which authorizes us in awaiting further proof before we can conclude that they never take any other direction. This arrangement, moreover, furnishes a strong argument in favour of the unity of the brain."

With regard to the manner in which the nervous filaments derive their origin from the substance of the brain and spinal marrow, Professor Rudolphi correctly observes, that we know nothing positive. It is true, that by diligent researches made upon fresh brains, or those which have been hardened by alcohol, or otherwise, we can trace the nervous filaments emerging, as it were, from the substance of the organ, yet we are unable to determine whether they are directly continuous with the medullary fibres of the brain, or whether they take their origin from the cortical substance, or ganglions, as maintained by Gall. The latter opinion he considers the most rational, because it comports better with what is observed in the nervous ganglions, in which we find a free communication established between several nerves, without there being any direct anastomoses between their different filaments.

By Reil, it was supposed, that the peripheric extremities of the nerves terminate in the substance of the tissues, by free ends, or a free substance; by Frochaska, that the nervous substance becomes blended as it were with the other materials of the organization, thus adapting them to the reception of impressions, while our author, from the result of numerous researches, concludes, that neither of these opinions are correct—

"That the nerves no where end in vessels, that the nervous matter never becomes blended with that of the muscles, glands, &c. but that the minute filaments branch out in such a manner as to form a delicate plexus around the muscular fibres, vessels, and other parts which they are destined to supply."

This view of the subject, we think, is very plausible, and is well exemplified in the distribution of the nerves in the tongue, the substance of the heart, and the larger muscles.

There yet remains one question to be solved relative to the connexion between the brain and spinal marrow and the nerves. Are the latter composed of two orders of filaments, one passing from the brain and spinal marrow to the periphery of the system, and the other in a contrary direction? There is nothing appreciable in the anatomical arrangement of the parts to warrant such a conclusion, and it cannot be allowed to have any other foundation than mere conjecture, however well it may seem to comport with the functions performed by the nervous system. But be this as it may, certain it is, that there are two orders of nervous filaments, the one subservient to sensation, the other to motion. This fact, lately established beyond all power of contradiction, by the researches of CHARLES BELL, MAGENDIE, &c. was known, or at least spoken of by GALEN. He did not, however, locate these different offices in separate filaments of the same nerve, but supposed that the nerves which possess a soft texture perform the office of sensation, while those which are firm and compact in their arrangement, preside over the function of motion. In many of the anatomical writings subsequent to those of Galen, we find direct reference made to the existence of sensorial and motory filaments in the same nerve, and this, too, in modern times, by authors with whose writings Mr. Charles Bell should have been familiar. Thus, PROCHASKA, in speaking of the division of the nerves into those of sense and those of motion, observes, "Hæc divisio recte in usu nervorum fundata est, quanquam inde minime sequatur nervos sensorios aliter fabricatos esse, quam sint motorii, & quanquam in unico sæpe funiculo nerveo utrumque nervorum genus tam sensorium quam motorium & hoc voluntarium non minus quam involuntarium ligata esse reperias." (Tractatus de Struct. Nervorum, Vindobonæ, 1779, p. 47.) But although this doctrine had been inculcated by a number of celebrated anatomists from the time of Galen, it had never been properly understood, before it was fully established and illustrated by Bell and Magendie.

Less difficulty exists in determining the relations between the brain and spinal marrow, though the facts are not sufficient to authorize us in concluding, with many of the most respectable anatomists of the present day, that the spinal marrow is formed first, and that the brain should be considered merely as an efflorescence of that body. True it is, that as represented by SERRES, in the four classes of vertebrated animals, the spinal marrow is formed prior to the brain, yet this by no means proves the validity of the assumption to which we have adverted; for although the brain may not be visible at this early period, it is nevertheless probable that it exists in a rudimentary state, otherwise we could not account for the development of that organ, in those cases of monstrosity in which the spinal marrow does not exist, instances of which are on record.

With regard to the vital properties of the nervous system, there has ever existed much difference of opinion, some referring all its operations to a mechanism similar to the vibrations of a tense chord: others, to the agency of a peculiar fluid, or nervous æther: others, to a kind of oscillatory motion performed by the elastic globules of which the brain and nerves are composed. These views, however, are irreconcileable with the known laws of the animal economy, and cannot be admitted in explanation of the phenomena in question. Indeed could we reconcile the operations of the nervous system with the agency of this oscillatory motion, the nervous æther, or these vibratory actions, we do not find it requisite to call to our aid the influence of such properties; for the nervous system, we must regard as a portion of the organization, endowed with certain properties capable of being influenced by particular laws, and obedient to the impression of stimuli, in the same manner that the entire organization is influenced. It is, then, to the operation of this nervous matter, under the influence of stimuli, that we must ascribe the whole phenomena of innervation, sensation, and the other manifestations to which the nervous system gives rise. But these operations are not every where the same. They seem to be most forcibly developed in the central part of the nervous system, while their manifestations or influence are conveyed to the peripheric portion, by means of the nerves which act as faithful conductors. This is proved by the influence of ligatures, compression, the division of a nerve, &c. which is always followed by the paralysis of the part to which such nerve is distributed. From this apparent conducting property of the nerves, and the interruption of the phenomena of innervation which succeeds their division, an identity has been inferred between the nervous and galvanic fluids. This hypothesis has been strenuously advocated by WILSON PHILIP, and several other distinguished physiologists. It has been alleged in support of it, that the galvanic fluid, when passed along a nerve thus divided, possesses the power of restoring the action of a part which has been paralyzed by its division, even though the ends be separated from each other. Humboldt and Reil long since offered an explanation of this conducting power of the nerves, when interrupted in the manner pointed out, the former attributing it to a kind of nervous atmosphere, (*atmosphera nervorum sensibilis,*) which he conceived might extend five-fourths of a line from the nerve itself; the latter to the property which he supposed the nerve to possess, of communicating its properties to the parts in its vicinity. These conclusions are, however, erroneous. The nervous atmosphere imagined by Humboldt, and subsequently by CARUS, does not exist, nor does the faculty of the nerve extend to the other parts, further than the nervous matter itself exists in their substance. The experiments of Wilson Philip do not prove an identity between the galvanic and nervous fluids, inasmuch as that principle can pass along any substance which is a good conductor, and when extended in this manner to the *distal* extremity of the divided nerve, it excites it in the same manner, and in virtue of the same law, that any powerful stimulus excites the living solids. This is a legitimate conclusion from the experiments of BRESCHET and MILNE EDWARDS, and comports better with reason and known principles, than the hypothesis of Wilson Philip. If it were owing to the agency of a nervous atmosphere as represented by Humboldt and Carus, it would not be interrupted by placing the parts upon a non-conductor, as for instance, a plate of glass, as was done in the experiments of WEINHOLD, (Versuche ueber des Leben,) because this nervous atmosphere would still prove efficient, even under these circumstances.

The brain, which we have said constitutes a portion of the great centre of the nervous system, is the seat of all intelligence: it receives all impressions which are made upon the sentient extremities of the nerves. and by a reflex operation, developes, controuls, and regulates all our thoughts, volitions, and actions. It therefore constitutes the great throne of the human mind, that noble prerogative by which man is ennobled above all earthly beings, and made to approximate in the power, extent, and versatility of his understanding, the angels of heaven.

> Os homini sublime dedit, cælumque tueri
> Jussit, et erectos ad sidera tollere vultus.

But in entering upon the investigation of this noblest of all human faculties, we are met by a question which has somewhat puzzled philosophers from the earliest period to the present time: is this important, this faculty almost superhuman, located in the entire brain, or is it the manifestation of some one of its parts? The older philosophers, adopting the latter conclusion, were much busied in seeking out the locality of the mind or soul. Some supposed it to be placed in the fornix, some in the pineal gland, others in the corpus callosum, and even more recently, SOEMMERING has referred it to the ventricles of the brain. Such conclusions are altogether preposterous, and are undeserving any serious consideration. Mind we are disposed to regard as merely consisting of an assemblage of manifestations emanating from the action of the brain. When, therefore, it is taken as a whole, it does not arise from the activity of any one particular part or portion of that organ, but from all its parts collectively. This, however, is not true of the individual manifestations themselves, for each part or manifestation of which the mind is composed, owes its origin to some particular portion of the brain, the special province of which is to give rise to it. While, therefore, the mind in a state of unity, is considered as emanating from the activity of the entire organ, its individual manifestations must be referred to the activity of some one of the parts of the organ, in the same manner that the entire alimentary canal is subservient to the process of digestion, while its different portions perform particular parts of that process: as, for example, the stomach the process of chymification; the duodenum the elaboration of chyle; while the large intestines perform the office of defecation. If this view of the subject be correct, (and that it is, we think cannot be denied,) how can we, with the metaphysicians, reject the doctrine of the plurality of faculties? Are we not led naturally and irresistibly to the adoption of the tenets of Gall and Spurzheim, according to which the mind is made up of an assemblage of faculties, all having their special localities in the brain, and each bearing a constant relation between its degree of development and the activity of the manifestation to which it gives rise? Such at least are the conclusions, which, from the facts adduced by them, as well as from our own observations and reflexions, we are constrained to adopt. Yet we are sorry that in this we are obliged to differ in opinion from such respectable authority as that of Professor Rudolphi, who seems to be strenuously anti-phrenological in his opinions. Let us examine the force of the arguments which he has opposed to those of Gall and Spurzheim, and see how far they are entitled to our confidence. Professor Rudolphi seems to think, (p. 38, vol. 2,) that Gall should be able, if his doctrines were well founded, to determine the functions of the different parts of the brain, merely by the inspection of isolated fragments of the organ in which those faculties are located; and he even asks the question of his ability to do so, and then urges its impossibility as an argument against the truth of his doctrines of the plurality of faculties. In reply, we will ask Professor Rudolphi, if he can determine, by mere inspection, what portion of the filaments of which a nerve is composed, presides over the function of sensation, and what over motion? If he were shown an isolated fragment of the optic nerve, and another of the nerve of taste, or hearing, could he designate, by mere inspection, which was subservient to the one, and which to the other of these functions? We maintain that he could not. With a parity of reasoning, therefore, we might deny, that these nerves perform different offices, as he has declared that the brain cannot consist of a plurality of faculties, because we are unable, merely by the examination of an isolated fragment of the organ to decide what faculty it subserves.

Our author attempts to controvert the several anatomical and physiological arguments, which have been adduced by Gall, in support of his opinions.

> "The brain," says he, "is affirmed by Gall to be less complicated in animals than in man, and that in the former the anterior and lateral portions of the cerebrum are defective." "In the mammalia," continues he, "the brain is as complex as in man, and possess the same parts. As to the convolutions, they are wanting in the human embryo, as well as in many of the inferior animals."

It is true, that in the mammalia we meet with all the parts which contribute to the formation of the human brain, but this by no means militates against the opinion of Gall, nor does it tend, in the slightest degree, to substantiate the objections to those opinions advanced by our author. Will he, or any other anatomist, affirm, that these parts present the same relative development? And will he not admit, that throughout the whole class, there is an unvarying proportion between the organization or development of the different parts of the brain, and the instinctive or intellectual manifestations? Do we not, in effect, find in man, the anterior lobes of the brain more developed, than in any of the mammalia? and do we not, in him, find an intellectual supremacy proportionate to the full development of this part of the organ? Do we not find, in animals, other portions of the same organs exhibiting a preponderance of development, and do we not, in them, observe a preponderance in the power, or manifestations of a corresponding faculty, or sentiment? How, then, can we believe that these manifestations are equally the result of the activity of the whole brain? If that were the case, the modifications in question could not take place. According to the views of Professor Rudolphi, quantity of cerebral matter being all that is requisite, the temperament being the same in two individuals having the same quantity of brain, the intellectual and moral manifestations should be the same, whether most of this matter occupies the anterior, posterior, or middle lobes of the brain. Will any one, who is conversant with the structure of the brain, and who has attended to its manifestations, tell us this is the case? Such an assertion would be at variance with facts which are visible to every one who carefully observes the phenomena of the intellectual, or instinctive operations of all sensible beings. But to render still more palpable the defects of the author, let us turn our attention to the three inferior classes of vertebrated animals; the birds, the reptiles, and the fish. We no sooner pass the limits of the mammalia, than we find a gradual falling off in the perfection, or complexity of the brain. In the birds, some of the parts of that organ are wanting, which exist in the mammalia, and a great deficiency of development is observed in others. As we descend still lower in the scale of beings, we find a gradual declension in the perfection of the organization, and this is every where observed to bear a constant relation with the decline of the intellectual powers. These are not mere assertions:—they are facts, which rest upon the respectable authority of VICQ D'AZYR, CUVIER, TIEDEMANN, CARUS, SERRES, and, indeed, every one who has dissected the brains of animals with attention, and cannot, and will not be disputed by Professor Rudolphi himself. If then, it be admitted, that there exists a constant relation between the development of a particular portion of the brain, and the manifestation of a particular faculty, or sentiment, we are constrained to admit the existence of a plurality of faculties, and to deny that the manifestations of the several faculties or sentiments, take place indifferently from any part of the brain, or from the entire organ. Professor Rudolphi has himself, in another paragraph, admitted this conclusion, p. 41. He observes—

> "There is a constant relation between the different parts of the brain, and the external senses, and it is also demonstrated, that the optic couches, the striated bodies, together with the anterior part of the tubercula quadrigemina, constitute the organ of vision; the olfactory bulbs, or rather the anterior inferior convolutions, the organs of smell; and the walls of the fourth ventricle, the origin of the auditory nerve," or the organ of audition. "An injury of the upper part of the brain occasions paralysis of the opposite side of the body; and a wound of the pons varolii destroys harmony between the anterior and posterior part of the brain."

Here, then, we have an acknowledgement, that different portions of the brain are endowed with separate properties, or perform different offices, yet we are told, that the organ is an unit; that its faculties are likewise an unit, and that volume is all that is requisite to ensure the most active and diversified qualities. A CÆSAR, or a

BONAPARTE—a HOMER, a SHAKSPEARE, or a MILTON—a NEWTON, a KANT, or a BACON, and volume alone distinguishes such immortal characters, from the thousand abject wretches, who are annually brought to the gibbet, or the stake, for the perpetration of the bloodiest crimes. By those who admit such philosophy as this, it might well be said, that the mind of a Newton would have exhibited the same powers, in the brain of a frog, as in its own native habitation divine.

Professor Rudolphi has also objected to the physiological inferences of Gall: 1st. That the different instincts and faculties require separate organs: 2d. That some animals are endowed with certain qualities, or faculties, of which others are deprived: 3d. That these faculties, which exist in all individuals of the same species, exhibit a great disparity in their degrees of activity: 4th. That in some individuals, the several primitive and fundamental qualities exist in different degrees, which could not be the case, if each primitive quality did not depend upon a special organ: 5th. That functions of the brain, essentially different, are not simultaneously manifested, either in man or animals:—some of them are manifested at all times, while others only show themselves, or cease to exist at particular periods of life, or at certain seasons. This is incompatible with the supposition, that all are dependent upon one homogeneous organ, the faculties of which are an unit: 6th. And lastly, that the continued application of the mind does not fatigue, in an equal degree, all the intellectual faculties: the principal fatigue is so far only partial in its influence, that we can restore the impaired energy, even while the mind is actively employed, provided we change the object. This could not be effected, if the entire brain were equally employed in the mental effort. Against these several propositions, he has detailed his objections. They, however, appear to us altogether too feeble and unsatisfactory to carry conviction: at least, upon our mind, they have not produced that effect, and we are free to confess, that we consider Gall's rejoinder[*] a complete refutation of all that has been urged by Professor Rudolphi, against his principles.

Against the first proposition laid down by Gall, he urges, that "a brain large in proportion to the nerves, therefore constituting a more powerful apparatus," is sufficient to account for the phenomena in question; consequently, there can be no necessity for supposing the existence of a separate organ for each sentiment, or faculty. Unfortunately for the validity of this assumption, we well know, that a large brain is not all that is requisite to ensure the active manifestation of all the faculties; for if in two animals, having brains of equal magnitude, we shall find that their several parts do not bear an accurate relation to each other, one perhaps, being largely developed at its posterior, the other at its anterior part, and in proportion as the one or the other of these conditions holds good, we shall observe a corresponding preponderance of the manifestations of the sentiments, or the intellectual faculties. The truth of this proposition is well exemplified in the elephant, and some other animals.

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[*] Sur les fonctions de Cerveau. Tome VI. Paris, 1825.

To the second proposition, our author objects, "that these separate parts, or organs,' cannot be demonstrated, and admitting them to exist, the animal could not be changed by education." In reply to this, Gall has observed—

> "If he will examine the brain of a dog and a cat, he will find a difference in the number, as well as in the arrangement of the convolutions—if he will compare the middle-lobe of the brain of an ox, with the same part of that of a dog, or a tiger—the brain of the common hen, with that of a crow—of the pidgeon with that of the sparrow-hawk, and does not, throughout, find a material cause in the arrangement of the brain, of the difference of their instincts—if comparative anatomy does not every where reveal to him a difference in the brain, corresponding with the difference of their qualities, I will console myself for his blindness by exclaiming '*non omnes omnia possumus*.'" (Fonct. de Cerveau, Tome VI. p. 133.

Professor Rudolphi has also objected to the fourth proposition of Gall, which, he says, is not well-founded; for, according to his views—

> "Whoever possesses a pre-eminent genius, as for instance GŒTHE, succeeds perfectly in every enterprize to which he devotes himself with ardour, whereas, an individual with a weak intellect, does not succeed well in any thing he undertakes. We often hear of great musicians, who are very much limited in their other capacities; but they who are remarkable for this faculty of music, are not, in reality, deficient in other respects, since they only live as it were, for their art, and neglect to improve themselves in all other pursuits. The sharper considers all others foolish, or imbecile, because they do not avail themselves of his cunning, or neglect to appreciate it" (Vol. II. p. 40.)

We are at a loss to comprehend how Professor Rudolphi, with the experience of ages before him, and the whole mass of authority against his assumptions, could advance opinions so palpably erroneous. If a man should be so fortunate, according to the principles here inculcated, to possess one intellectual character in an eminent degree, he is to be at once considered as an universal genius, capable of the most glorious and diversified mental achievement of triumphing over every difficulty; of fathoming the most abstruse mysteries of religion and philosophy, and excelling alike in every capacity. By this rule, a HANDEL, or a MOZART, might be a HOMER, or a NEWTON. Mere chance could have transformed a GALILEO into a KANT, or a LOCK—a DANTE, or a MILTON, or a PETRARCH, into a CÆSAR, or NAPOLEON, or the latter into a HEYNE, a WOLFF, or a PARR!! Intellectual supremacy, in any department, would be accidental, and a RAPHAEL, and LEONARDI DE VINCI, could have as easily immortalized their names by diving into the mazes of metaphysics, or inditing love sonnets, as by wielding the palet and brush, and imparting life, love, and beauty to the inanimate canvass. Our author should have recollected that "*Poeta nascitur, non fit*," as all experience has shown, that without this inheritance from nature, it will be vain to aspire to supremacy in any intellectual pursuit.

These will serve as specimens of the arguments adduced by Professor Rudolphi, against the plurality of the faculties of the mind, and the propositions of Gall, upon which, that doctrine is sustained. It is needless we should state, after the observations already made, that we consider them by no means satisfactory, or conclusive. We, therefore, deem it an act of supererogation to follow him further in his objections, since those he has urged against the fifth and sixth propositions, are even more futile than those which have been detailed. The doctrines of phrenology are fortified by too great a mass of important facts—are too much in accordance with reason and common sense, the known laws of the organization, and the manifestations of mind, to be shaken by the empty cant, and frivolous sophistry, by which it has been assailed, and he who wishes to controvert them, must appeal to more efficient instruments of combat.

From the consideration of the intellectual operations, we shall pass with our author to the examination of the subject of sensation. The sensibility with which any part of the body is endowed, is owing to the nerves distributed to it; and its degree will, consequently, depend upon their number and volume. It is for this reason that we find such a diversity in the powers of sensibility possessed by the different tissues, some being endowed with that property in a high degree, while others possess it so sparingly, that it can scarcely be said to exist: of the latter class, are the hair, epidermis, nails, bones, cartilages, ligaments, tendons, and serous membranes, into which no nerves penetrate, except some very minute filaments which accompany the vessels. Next in the order of their powers of sensibility comes "the vessels and some of the glands, the thyroid gland and spleen, the liver, lungs, kidneys, and testicles; and in a still higher degree the alimentary canal, the skin, muscles, and, last of all, the external senses." (Vol. II. p. 53.)

This sensibility is liable, however, to be very much modified by disease, and a circumstance somewhat strange is here observed—that these modifications are not regulated by the number and magnitude of the nerves. Thus, we frequently find those parts, which are most obscure in their manifestations of sensibility, becoming exquisitely painful under the influence of disease.

The nervous system, constituting the proper apparatus of sensation, is endowed with a peculiar power of receptivity, or sensibility, which, when acted upon by its appropriate agents, gives rise to the phenomena of sensation, which must be considered according as it affects the nervous system in general, (sensatio, aesthesis,) or particular parts or apparatus of it, as the five senses—touch, taste, smell, hearing, and sight. The phenomena of general sensation must, moreover, be divided according as they consist of the reception of the impression by the nerves themselves, and its extension to the brain, and its communication from this latter organ to the muscles, thus giving rise to volition. The sensations are variously modified by circumstances, and differ in their manifestations according to their intensity, duration, the state of the body, and the parts in which they are excited. In consequence of the extensive chain of sympathies possessed by some organs, impressions made upon them give rise to a much more extensive range of sensations than impressions made upon parts not thus endowed. We cannot, however, enter into any considerations upon the laws of sympathy relative to which our author's remarks are very sensible.

The whole surface of the body is more or less tactile, at least all those parts which are endowed with sensibility, yet some portions of the skin possess this faculty in a much more exquisite degree than others, and are accompanied with an arrangement of the other structures calculated to render the faculty extensively available. This is especially the case with

> "The upper extremities which have the tips and inner surface of the fingers beset with numerous delicate papillæ abundantly supplied with a tissue of vessels and nerves, while on the back part of the last phalanx, the existence of the nails divests them of the faculty of touch. The great mobility of the shoulder joint and fingers, moreover, furnishes a great facility for the ready application of one hand, and still more both, to objects, and bringing them in relation with all their parts, so as to enable us to determine the figure and arrangement of their surface, as well as whether they are hard, smooth, or beset with asperities."

The arrangement of the elbow-joint enables us, at the same time, to estimate the distance of objects, and when taken in conjunction with the numerous articulations of the fingers, which accommodate themselves with great readiness to small bodies, furnishes an excellent means of determining their relations with each other. All these circumstances render the sense of touch one of great importance to man, so much so, indeed, that it has sometimes happened, when individuals have been deprived of the powers of vision, their tactile powers have become refined to such a degree, as to become a tolerable substitute for the lost faculty. Cases have been reported in which the sense of touch was so delicate in blind persons, as to enable them by its agency to distinguish colours.

In animals it only affords a very limited resource. Even in the monkey, the fingers are so small, and the nails so much curved, as to furnish an arrangement very unfavourable for the exercise of this faculty; and the difficulties are still further augmented by the shortness of the thumb, and the confined motions of the shoulder-joint, which, in consequence of the upper extremities being used for the purposes of progression, does not allow of the same latitude of motion as in man. It is for these reasons that animals seldom employ the sense of touch, but trust for the most part to those of smell, sight, and taste. The trunk of the elephant, though apparently employed by that animal as an organ of touch, is destined more, Professor Rudolphi thinks, as a substitute for the shortness of its neck, and as an organ of prehension: and those mammalia which employ their fore-feet as hands, use them more for the purpose of seizing and holding objects, than that of determining their characters. Of still less value, as organs of touch, are the nose-bristles, or palpi, (*mystaces*,) of animals of prey, as tigers, lions, cats, &c. But in consequence of their great length and mobility, they serve as a medium by which the skin, as an organ of touch, can be brought in relation with surrounding objects. "Vrolik, (Over-het nut der knevels ley viervoetige dieren. Amst. 1800,) found, that a dog that had been deprived of these hairs, and blindfolded, could not find his way through a narrow passage, and that a cat, similarly situated, could no longer catch mice." These hairs, therefore, serves as feelers, by which the animals possessing them are directed in the dark in search of their prey, but never as organs of touch in the true sense of the word. The same thing may be said of the filaments, which are attached to the head of some fish, (*Lophius*, *Silurus*, &c.) of the antennæ and palpi of insects, the tentacula of the molusca, &c.

The sense of taste ministers largely to our pleasures, at the same time that it, to a certain degree, protects us against many sources of danger. The organ in which this important faculty is located, is the tongue, composed of an assemblage of muscular fibres variously blended together, and abundantly supplied with nerves, over which is expanded the mucous membrane of the mouth. The nerves distributed to this organ, are the hypoglossus, the lingualis, or third branch of the fifth pair, and the glosso-pharyngeal. Of these, the first is spent upon the muscles, the second, for the most part, upon the three orders of smaller papillæ, with which the tongue is beset upon its upper surface, viz. papillæ filiformis, conicæ, fungiformes s. capitatæ; and the third, upon the large papillæ, (papillæ vallatæ.) There has, however, existed some difference of opinion relative to the ultimate distribution of these nerves, and especially with regard to the offices which they perform. Cuvier, (Leçons d'Anatomie Comparée, Tome II. p. 697,) observes, that "from the frequent anastomoses between the fifth and ninth pairs of nerves in the tongue, it is difficult to determine which of them contributes most to the formation of the papillæ." Minute researches upon this organ have, however, led to the conclusion, that the glosso-pharyngeal is distributed to the posterior, and the lingual branch of the fifth pair to the anterior papillæ, in which they are intertwined with the minute vessels in such a manner as to form the greater part of those bodies. Many of the minute filaments can, indeed, be traced directly into the papillæ even with the scalpel, but their termination in those bodies can be demonstrated by another process still more satisfactory. We were informed by the late M. BOGROS, of Paris, that he had succeeded in injecting these nervous filaments of the fifth pair, by means of quicksilver, to their termination in the papillæ; and we had occasion to hear the same affirmation made by Professor CRUVEILHIER,* of the School of Medicine. Whether, therefore, we admit the correctness of M. Bogros' opinions, in reference to the structure of the nerves, or not, the result of this experiment clearly proves, that the papillæ are principally supplied by the fifth pair of nerves, and, consequently, that it should be considered as the proper nerve of taste. There can, however, be but little doubt, that the glosso-pharyngeal nerve has also something to do with the sense of taste, otherwise it would not be distributed to the papillæ. AUTENRIETH, (Handbuch der Empirischen Mensch. Physiol. Th. 3. 5. 112,) indeed, supposed that the lingual and trigeminus were destined to receive different impressions; hence the reason, according to his views,

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* Leçons Orale d'Anatomie, 1825.

"why the sensations of sweet and sour are perceived by the point of the tongue, those of bitter and alkaline by the posterior part of the organ—why the galvanic influence excites an acid taste near the apex of the tongue, and an alkaline towards its root." This, however, must be received as mere hypothesis, against the validity of which many objections might be urged. Less difficulty exists in relation to the conclusion, that these are the proper nerves of taste, inasmuch as it is not only warranted by the anatomical characters of the organ, but is also confirmed by several pathological phenomena. Columbus, (de Re Anatomica. Venet. 1559, fol. p. 264,) mentions the case of an individual deprived of the sense of taste, in whom the lingual branch of the fifth pair, instead of going to the tongue, was distributed to the back part of the head. This destruction of the sense of taste, has, moreover, sometimes taken place in consequence of tumours pressing upon the lingual branch of the fifth pair, an instance of which is mentioned by Parry, while the mobility of the tongue has remained unimpaired. It is also true, that Heuermann, (Physiologie, 2. B. Kopenh. 1752. s. 293,) has mentioned an instance of a different kind, in which, in extirpating one of the lingual glands, a branch of the hypoglossal nerve was accidentally divided, and a loss of the sense of taste was the consequence. In objection to this, however, Professor Rudolphi very justly observes, that it no more authorizes us in concluding from the result, that the hypoglossus is the nerve of taste, than that the blindness, which sometimes follows a division of the frontal nerve, warrants us in concluding, that it is the proper nerve of vision.

A question of some importance, connected with our present subject, is, whether any other parts than the tongue are endowed with the faculty of taste. Reasoning upon what has been said upon the structure and functions of that organ, we should be disposed to conclude that it alone is endowed with the sense in question. Pathology, however, furnishes some facts which go far to controvert such a conclusion. Jussieu* has detailed the case of an individual who possessed the power of discerning the taste of different articles, notwithstanding she had no vestiges of a tongue, except a small fleshy excrescence. Another case is described by Bredot,† of a young lady who lost her tongue by the small-pox, but still retained the sense of taste to such a degree as to enable her to distinguish the peculiar characteristics of different articles of food and drink. BLUMENBACH,* mentions an individual who was born without a tongue, and yet possessed the faculty in question so perfectly as to be able to distinguish the taste of different substances, even when blindfolded. From all this it appears manifest, that some parts of the mouth, and especially the palate, are endowed with the power of perceiving the impression made by sapid bodies. This however must be considered as only auxiliary to the tongue, which is unquestionably the proper seat of that faculty. With regard to the faculty of touch which has been ascribed to the tongue by Treviranus,† we shall make no observations. It is no doubt capable, to a certain degree, of determining the characters and configuration of bodies, yet so imperfectly, that we do not think it deserves to be regarded as an organ of touch.

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* Mem. de l'Acad. des Sc. de Paris, 1718.

† Act. Helvet. Vol. VIII. p. 184. Treviranus Philosophie der Lebendar Nat. Band 6, p. 226.

The observations of Professor Rudolphi on the faculty of vision, are of a very interesting character, and furnish an excellent exposition of the phenomena connected with that important function. Our restricted limits will not, however, admit of our entering into any details relative to the several topics embraced in this portion of his work. This we regret, as it contains many observations which could not be otherwise than interesting to our readers. The same excuse must suffice for our not touching upon that part of our author's labours which relate to the senses of smell and hearing, the subjects of the intellectual operations, muscular motion, &c. all of which are treated with much ability.

The proper organ of voice is, according to our author, the larynx, which, says he, is easily shown, by making an opening into the trachea of an animal, which is always followed by an extinction of voice. If, moreover, we take the fresh larynx of some animal, and force air through it, a sound will be produced which bears the character of the proper voice of the animal.

The parts of the larynx which are principally instrumental in the development of the phenomena of voice, are the vocal chords or ligaments of the glottis, which extend in a parallel direction from the thyroid to the arytenoid cartilages. These chords, as their name implies, have been generally considered of a ligamentous character. It was stated, however, several years ago, by Dutrochet, that they are merely a kind of aponeurosis of the thyreo-arytaenoideus muscle. This opinion is not altogether correct, as has been very justly observed by Professor Rudolphi. Professor MUENZ,‡ has, however, demonstrated that they are the proper tendons of a semiperiform muscle, situated immediately beneath the mucous membrane of the larynx, the fibres of which are implanted obliquely into them. The correctness of this assertion, we have repeatedly verified by our own dissections. Indeed, without these muscles, we can scarcely conceive how the condition of the chords in question could be sufficiently varied, to give rise to the several modulations of the voice.

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* Hanbuch der Vergl. Anatomie, p. 330. † Biologie, B. 6.

‡ Handbuch der Anatomie, 1827. See the last number of this Journal

Much difference of opinion has existed in reference to the mechanism of the voice. DODART supposed, that it results from the passage of the air through the larynx, upon the principle of a wind instrument, while FERREIN ascribed it to vibration upon the vocal chords, like the strings of a musical instrument. It has, however, been shown by KEMPELEN, (Mechanismus der menschlichen sprache, Wien, 1791,) that both these explanations must be taken into the account, in which opinion most physiologists of the present day fully concur.

Much difference of opinion has existed in reference to the use of the epiglottis, some supposing that it is indispensably necessary in the production or modulation of the voice, while others have denied that it has any participation in that function.

> "That it is not indispensably necessary for such a purpose," says Professor Rudolphi, "is proved by the circumstance, that it only exists in man and the mammalia. It has, moreover, been affirmed by Liscovius, (Diss. Sist. theoriam Vocis, Lips. 1814,) that when it is extirpated, no change of the voice is perceptible."

It seems to be more important as a means of preventing particles of food and drink from falling into the larynx: an office, which it has been affirmed by MAGENDIE not to perform. Upon this point, the opinion of our author is opposed to that of the French physiologist, against which he urges some very conclusive arguments. It was ascertained by REICHEL, in his experiments, (Diss. de usu Epiglotidis, Berol. 1816,) that the extirpation of the epiglottis occasioned the animal to experience great difficulty of swallowing.

> "But," says our author, "not to draw our inferences from animals, Kohlrausch presented me the larynx of an individual, who had died of laryngeal phthisis, the epiglottis of which was entirely destroyed, except a very small portion of its base. This man experienced great difficulty of deglutition, and could only swallow fluids by mixing them with some substance, so as to form a kind of paste."

Numerous cases, showing a similar result, are detailed in the work of Dr. SACHSE, on laryngeal and tracheal phthisis, which has been noticed in a preceding number of this Journal. Professor Rudolphi thinks, that besides this office, the epiglottis seems, in those animals that breathe through the nose with the mouth closed, to direct the air into the larynx.

Our author is also at variance with MAGENDIE and CLOQUET, upon the distribution of the nerves of the larynx. It has been affirmed by these gentlemen, that the recurrent nerve is distributed exclusively upon the muscles which dilate the glottis, viz. the crico-arytaenoidei postici et laterales, and the thyreo-arytaenoidei—and that the constrictors receive their nerves from the superior laryngeal. Against the correctness of this assertion, he appeals to a preparation of the larynx made by SCHLEMM, and deposited in the Anatomical Museum of Berlin, from which he concludes, that ANDERSCH, SOEMMERING, PORTAL, and BICHAT, were correct in their descriptions of these nerves.

"That the superior laryngeal nerve forms a connexion with the branches of the recurrent in the larynx, and that both send filaments into the constrictors, as well as into the dilators of the glottis."

We have directed our researches, with some attention to this subject, and have never been able to find any thing to induce us to concur with Magendie and Cloquet, in the description of the distribution of the nerves of the larynx, which they have given, but have always observed filaments passing from the superior and inferior laryngeal nerves alike into the dilators and constrictors, as represented by Rudolphi, and the authors quoted.

We might go on to examine the contents of the third volume, but we find that we have already reached our limit, and shall be obliged, for the present, to forego that satisfaction. It should, however, be stated, that the work is not yet completed, and that the remainder of it will be comprised in a fourth volume. When, therefore, that part of it reaches us, we may be induced to recur to the labours of our author. On the present occasion, we cannot take leave of him, without testifying the great pleasure and instruction we have derived from the examination of his work. True, we have differed with him in opinion upon some points, but in the main, candour has compelled us to commend. It unfortunately seldom falls to the lot of the reviewer, to examine works like the present. When, therefore, he is called upon to express an opinion, it is peculiarly gratifying to him to find so much in the labours of his author to entitle him to his favourable consideration. A translation of the work in question, was begun some time since, in England, and the first volume published; but we fear the design has been relinquished. We regret this the more, as we think it should be in the library of every medical man; and we unhesitatingly affirm, that as an elementary work for students, we consider it superior to any we have yet seen. E. G.

ART. XI. *Des Hémorrhoïdes, ou Traité Analytique de toutes les Affections Hemorrhoïdales.* Par A. J. MONTEGRE. 1 Vol. in 8vo. 2d edition. Publiée par sa Neuve. Paris, 1830.

HÆMORRHOIDS constitute one of the most frequent, inconvenient, and painful of the diseases with which the human system is affected. Though they have often attracted the meditations of physicians, and served as a text to writers, yet, until very recently, their true character has been very imperfectly understood, and the remedies employed for their cure frequently inapplicable.

The etymological meaning of the term hæmorrhoids, is simply a discharge of blood. Surgeons, however, sanctioned by long custom, have implied by this word, either a bleeding from the lower part of the rectum, recurring more or less frequently, yet not accompanied by any distinguishable permanent tumour within or on the outside of the anus; or, lastly, tumours originally produced by effused blood, which is commonly converted into an organized substance.

There may be profuse discharges of blood from the anus, as there are from the stomach and lungs, but this is a distinct disease from what is commonly understood by the term *open piles.* Whether this sanguineous fluxion be established in the uterus or rectum, its influence on the economy is the same. The difference of local effects will be explained by the difference in the structure of the parts. The pain and inconvenience of this species of fluxion, are frequently less considerable than is felt during the menstrual discharge. This hæmorrhagy may be the result of an exudation from the mouths of the capillary vessels, such as occur in the uterus during menstruation.

The inhabitants of large cities are more subject to this disease than those of the country—and those in northern climates more than those who reside near the equator. It is sometimes the effect of an hereditary disposition, and then it occurs at an early period of life. In general, however, it is a disease of middle or advanced life, though no age is entirely exempt from it. Children have been attacked with hæmorrhoids in the first year, and even in the first month of their existence. No temperament or constitution can claim immunity from this affection, though the sanguineous and bilious are most obnoxious to its attacks. Persons who have been subject to nasal or other hæmorrhagies, are liable to hæmorrhoids, especially if they suddenly exchange an active for a passive life.

The causes of hæmorrhoids are habitual constipation; the prolonged efforts to discharge hardened fæcal matter; the lodgment of suppositories, worms, or other foreign bodies in the rectum; the frequent use of warm injections; the habit of sitting on cushions filled with feathers; alcoholic liquors; heating aliment; the abuse of drastic purgatives; the compression of the abdomen by belts or corsets; the weight of the gravid uterus, and the suppression of habitual evacuations. Every irritant applied on or near the rectum may excite this disease by determining a fluxionary movement towards that part. The maxim "*ubi irritatio, ibi fluxus,*" applies with particular force to the anal region. Even the application of leeches to the fundament, which some physicians injudiciously apply, will always aggravate the disease.

Hæmorrhoids occasionally occur as a local disease, but often their appearance, particularly if the patient has been long subject to the disease, is preceded by horripilations of the back and loins, accompanied with pain, sometimes a numbness of the lower extremities, pulse hard and contracted, the countenance pale, the eyes dull and surrounded by a dark circle, dryness of the mouth, pain and heaviness of the head, vertigo, depression of spirits, tension and more or less tenderness of the abdomen, flatulence, a frequent desire to pass urine and to go to the close stool, a sensation of pressure from the anus to the perinæum, and frequently a discharge of thin mucus from the rectum. The patient is affected, indeed, with such symptoms as indicate inflammation of the lining membrane of the intestines: such as heat, itching, and pain, within and around the anus. An abundant serous discharge frequently takes place, which is denominated by the French surgeons *hæmorrhoïdes blanches.* This discharge affords no evidence of a variety in the disease, but merely the existence of considerable inflammation. In other instances a discharge of blood takes place, which constitutes what is called open piles, and procures immediate relief of all the general symptoms. The discharge of blood occurs when the patient is at stool. This flux may continue for several days, and has been known to take place daily for months and even years. MONTANUS reports that a hæmorrhoidal patient lost from the anus two pounds of blood daily, for forty days. POMME, in his *Traite des Maladies vaporeuses, etc.* states that a patient of his discharged nearly a pint a day for a month. PANAROLA observes, that a Spanish nobleman voided every day, for four years, a pint of blood from some hæmorrhoides, and yet enjoyed perfect health. Other curious instances of this kind might be multiplied without number. Making due allowance for exaggeration, there is no doubt that enormous discharges will sometimes take place from the hæmorrhoidal vessels without terminating fatally.

When no discharge of blood follows irritation of, and consequent fluxion to the rectum, we observe at the margin of the anus, and sometimes even within the rectum, one or more tumours of a round and shining appearance, of a dark violet colour, with more or less inflammation and pain. Until recently the nature of these tumours was imperfectly understood. It has been generally supposed that they consisted of a varicose dilitation of the branches of the great hæmorrhoidal vein; a ramification of the vena portalis ventralis. Under this impression, it is believed that there is a liability to dangerous hæmorrhagy, if these vessels be opened. It is thought that the magnitude of the danger is increased by the circumstance of there being no valves in these veins, to prevent the blood from descending in fatal quantities. Celsus, who adopted the opinions of Hippocrates, thought that piles were formed by the swelling of the orifices of the veins, forming granulations, from which issued blood. Le Dran compared them to spongy tumours. Cullen was the first to throw off the shackles of authority, and to suggest that piles did not consist of varicose veins, but of an effusion of blood into the cellular tissue of the last intestine, near its extremity. The accurate anatomical examinations of Recamier confirmed this opinion. He discovered that the blood was contained within a delicate membranous cyst, formed out of the cellular tissue which connects the mucous and muscular coats. In no instance did he discover even a connexion between these tumours and varicose veins. More recently Chaussier has expressed the opinion, that piles arise from a rupture of a capillary ramuscle, situated between the membranes which constitute the parietes of the intestine. The blood thus poured out, raises the internal coat, and forms a small tumour of a brownish colour, not dissimilar to the sanguineous tumours on the head occasioned by a contusion. Thus hæmorrhoidal tumours are, in the first instance, a mere ecchymosis, or an effusion of blood, furnished by the rupture of some capillary ramuscle, which remains circumscribed under the lining membrane of the intestine near the anus. So soon as the causes which provoked the extravasation are removed, the blood is absorbed and disappears. If, on the contrary, the constipation continues, with straining efforts or tenesmus, connected with a plethoric habit and active circulation, or if the rectum be in a state of irritation, as is frequently the case in diarrhœa, the tumours will not only remain, but increase in magnitude. If we examine these tumours, we will find the blood is enclosed in a thin membranous cyst, formed by the accreted lamina of the cellular tissue, between the muscular and mucous coats of the rectum.

Montègre, the author of the work under consideration, dissents from the opinions just cited, and thinks it more conformable with the laws of life, that, instead of the cyst being formed out of the cellular tissue, it arises from a dilated capillary artery. As, however, these piles are often formed in a few hours after the fluxionary movement has commenced, it would be altogether impossible that a capillary should be dilated to a size corresponding with a large hæmorrhoidal tumour. The opinion of our distinguished author, on this point, cannot be sustained on any ground, and is besides in opposition to the reports of those who have scrutinized these tumours with the tact of experienced anatomical pathologists. Believing, as we do, that Montègre's suggestion does not call for a more serious refutation, we shall offer some further remarks on the opinions of those who advocate the varicose character of hæmorrhoids. Independently of the proofs which have been derived from dissections, it is evident that a simple varix never could attain the size, nor assume the conformation, of a large hæmorrhoidal tumour. If removed by the knife, the bleeding is very inconsiderable, even when they are of the largest size. If the piles were varices, there would be always profuse hæmorrhagy. Sometimes the cyst is found quite empty and shrivelled, a condition of the parts which could never be expected if the disease consisted of dilated veins.

ABERNETHY remarks, that such piles as he has seen removed by operations, and those with which he has met in the dead body, possess no vessels of magnitude, and seem to be composed of a merely fleshy substance.

Mr. HOME remarks, in his work on *Ulcers*, that hæmorrhoidal tumours of long standing become changed in nature and appearance, that "their contents coagulate and become solid, their coats increase in thickness, and they resemble pendulous excrescent tumours in other situations in the body."

Mr. KIRBY, of Dublin, remarks, in his valuable "*Observations on the Treatment of certain severe forms of Hæmorrhoidal Excrescence,*" that he availed himself of the

> "Extensive opportunities which his dissecting room annually afforded him, and had taken some pains to ascertain the nature of these tumours; and he cannot say that they seemed to be formed of a varicose distention of the great hæmorrhoidal vein, even in a single instance. In every case of external hæmorrhoids, the tumours appeared to be composed of a prolongation of the cellular substance in a state of unusual firmness, surrounded by some veins, and covered by the integuments which form the folded margin of the anus."

With a knowledge of these facts, the author of this review was induced to examine the structure of those piles which had been removed, or which he occasionally met with in the dead subject. He has found them in all instances to consist of sacs of blood, formed in the manner just detailed; or, if the patient had laboured under the disease for many years, and had experienced repeated attacks of inflammation, they were converted into mere fleshy substances, containing no blood-vessels of magnitude.

In the first stage of this disease, then, it is found to consist of irritation or inflammation of the mucous membrane of the rectum, which is followed by an effusion of blood between the internal and muscular coats. If this tumour be freely opened with a lancet, a clot of coagulated blood alone occupies the cyst. If the wound be small, blood again collects beneath the skin, and the swelling or pile is again reproduced. If the bowels be regulated, and the inflammation removed, which is the cause of these productions, the effused blood is absorbed, and the distended skin appears loose and pendulous. On the contrary, if the inflammation be permitted to continue, coagulating lymph is thrown out, so as to fill the space previously occupied by the blood, which in time becomes a solid organized substance, forming an external permanent pile. The orifice of the anus is often surrounded by tumours of this kind.

In like manner blood is effused beneath the lining membrane of the bowel just above the sphincter, and forms an internal pile. The internal tumour differs in no respect from those which are situated externally. Except when embraced by the sphincter ani, the internal pile is less painful than those which are presented exteriorly. In the former case, the tumours are surrounded by soft and yielding substances, which do not make any painful pressure on them. When, however, the pile is embraced by the gripe of the sphincter muscle, the pain is exceedingly severe, and unless promptly relieved by pressing it upwards, the violence of the symptoms increase until they resemble in some degree strangulated hernia. So completely, indeed, is the circulation in the tumour interrupted by the forcible contraction of the irritated muscle, that it mortifies and sloughs, and thus accomplishes a cure by a natural operation. When, however, the pile is thus removed by sloughing, the intestine contracts in diameter. If this contraction be not relieved by a suitable bougie, the patient will labour under all the inconvenience and irritation of stricture of the rectum.

An *eversion of the rectum* frequently attends this disease. This may be attributed, in part, to the efforts made to overcome the mechanical resistance which these tumours oppose to the expulsion of the fæces. It arises also from an irritable striving action of the bowel, which produces a kind of intussusception. Thus folds of the intestine often descend in an irritable action of the part during the expulsion of the fæces. This form of the disease occurs while the patient is labouring under some previous disorder of the bowels, and every urgent call to void fæces causes him to suffer great pain for a number of hours. Each evacuation is attended with similar consequences, and thus patients have continued for a considerable time ignorant of the cause of their sufferings. To relieve this painful affection, it is necessary to introduce the finger and replace the fold, by which manœuvre the pain and inconvenience are immediately removed. By repeating the same act when required, by regulating the diet, and by keeping the action of the bowels in a healthy and soluble state, by means of injections of cold water or flaxseed tea, the patient has suffered no further inconvenience, and in a short time the faulty action of the intestines entirely cease. Should daily cold injections be found insufficient to keep them freely open, mild laxatives should be administered, such as the confectio sennæ and sulphur, or a compound of castor oil and mucilage of gum Arabic.

If a patient remain ignorant of the cause of his sufferings, and does not adopt this mode of relief, the fold of the bowel becomes irritated and thickened by the pressure of the sphincter muscle. It now enlarges, and becomes in form adapted to this unnatural situation, and thus we often meet with folds of the bowel forming hæmorrhoidal tumours. When these tumours become inflamed and swollen, they have a tendency to draw down more of the intestine, and increase the disease. The eversion of the bowel thus produced, must be considered an entirely different case from an ordinary prolapsus ani, and must of course require different treatment.

We have already suggested that hæmorrhoids appear to be the effect of a general disorder of the alimentary canal, and that the correction of the general affection is essential before we can hope to cure the local disease. This can be best accomplished by local bleeding from the abdomen or loins, a suitable regulation of the diet, keeping the bowels in a soluble state, cold applications to the affected part, and a horizontal position. Care should be always taken in case of internal pile to replace it above the gripe of the sphincter. If the tumour be large and recent, it should be punctured with a lancet, and its bloody contents discharged. Under these circumstances, hæmorrhoidal tumours, and the procidentia ani, often become of so little inconvenience, as not to induce the patient to wish for more radical relief.

The open pile is the least painful form of the disease, and when the discharge is moderate, little else is required of the patient except to avoid excess in his exercise and in his regimen. But if it be profuse and debilitating, it is necessary to adopt such means as are best calculated to arrest it. For this purpose we direct the patient to lie on a mattress, to be kept cool, to be placed on a rigid diet and acidulated drinks, and when the patient is plethoric, to be bled from the arm. We must have recourse to cold and astringent applications to the anus, to the thighs, and to the abdomen. Cold injections should be thrown into the rectum. If these remedies fail, and the patient's life is in danger, which is seldom the case, it then becomes necessary to make a strict examination for the purpose of ascertaining the point from which the blood issues. If it flow from a projecting tumour, it should be immediately amputated, which, in most instances, will promptly arrest the hæmorrhagy. Should this measure fail, however, it will then be necessary to introduce compressed sponge, for the purpose of exerting pressure on the mouth of the bleeding vessel. Under such circumstances, the French surgeons rely almost exclusively on the application of the actual cautery. In cases of hæmorrhagy attended with great debility, the bark, mineral acids, and steel, have been advantageously prescribed.

The entire suppression of an habitual hæmorrhoidal flux, will often give rise to other alarming diseases, such as epilepsy, coughs, paralysis, &c. By occasionally drawing blood from the arm, and by causing the patient to live abstemiously, these unpleasant consequences may be avoided. Should they, however, from any cause supervene, it will be necessary to use every means to invite a return of the original disease. For this purpose we apply leeches to the anus, use warm and stimulating injections, irritating suppositories, purgatives, and rough frictions around the margin of the anus. By re-establishing this discharge, we commonly succeed in relieving the disease to which its suppression had given rise.

It is the blind pile for which the surgeon is most frequently consulted. If, from the magnitude or number of these tumours, such an opposition should be created to the expulsion of the fæces, that the bowel is forced down at every attempt to discharge them—if, from the inflamed and ulcerated state of these tumours, they maintain an irritable action of the parts, tending to continue and aggravate the disease, then some operation seems to be imperiously required.

Caustic, the actual cautery, the ligature, and excision, are all used by different surgeons in the removal of these tumours.

Caustics are objectionable, because their action extends much beyond the point to which they are applied. As this remedy then cannot be properly controlled, as it is besides slow in its operation, and as it gives rise to more or less inflammation of the surrounding parts, the practice has been entirely renounced by judicious surgeons.

The actual cautery was an operation chiefly relied upon by the ancients for the removal of hæmorrhoids. But as it was found exceedingly painful, and was followed by symptoms at once distressing and unmanageable, this method has been also very properly rejected. It is now only used to repress an excessive hæmorrhoidal flux.

The *ligature* has been successfully employed, but always with excessively severe pain, and not unfrequently with other alarming symptoms. Where a number of piles protrude, they cannot all be strangulated at the same time. The pain attending the application of more than two or three ligatures at the same time, is more than the most robust patient can endure. Under these circumstances, the irritation produced by the first ligatures increases the tumefaction, and aggravates the pain of those on which the operation has not been performed. In other instances, this treatment has given rise to abdominal pains, constant nausea, retching, small and frequent pulse, cold extremities, suppression of urine, convulsions, and, indeed, all the symptoms of strangulated hernia. The sufferings of the patient often exceed that of the severest capital operation. PETIT relates two cases in which death resulted from the operation with the ligature. KIRBY relates two cases illustrating the disadvantages of the ligature. In one of these examples the patient's life was saved with great difficulty, and in the other, the operation was followed by tetanus and death. He remarks, "the ligature was applied in the case of a gentleman, who had been troubled with hæmorrhoids for several years; the operation was fatal to him, tetanus having set in, in the course of a few days."

Since the period of POTT, but few European surgeons have advocated this method of operating. On the contrary, the most distinguished of them have given it an unequivocal condemnation. Of these, it is sufficient to give the names of HEY, ABERNETHY, COOPER, BOYER, and DUPUYTREN.

The only grounds on which the ligature can have a preference under any circumstances, are, that it does not expose the patient to hæmorrhagy, and that it is supposed to be least alarming to timid patients. As, however, troublesome hæmorrhages rarely or never occur after the direct amputation of the pile, and as it can be readily commanded even if it should take place, this argument in its favour ought not to possess any material influence.

Excision of the hæmorrhoidal tumour is at present considered the least hazardous, most prompt, most effectual, and least painful method of operating. It has now the sanction, indeed, of the most authoritative surgeons of the age? It might be asked, why a plan of treatment. which has proved both safe and effectual, is not more generally pursued in this country. As it must be an apprehension of fatal hæmorrhagy, it would be well to inquire into the grounds on which these apprehensions rest. So far as our researches have extended, Petit has furnised the only recorded case where a fatal hæmorrhagy followed the excision of a hæmorrhoidal tumour. As no proper means had been used in this instance to arrest the flow of blood. it does not furnish an objection to amputation. Petit admits, that if the *tampon* had been introduced, the hæmorrhagy might have been arrested. As then this operation has terminated fatally but in a single instance in thousands of cases, it cannot be on this ground condemned. As well might we denounce amputation of the extremities, because rude or negligent surgeons have allowed, in a few instances, their patients to bleed to death. It should be also borne in mind, that the distinguished surgeon who witnessed this solitary case, was an advocate for excision. and never afterwards found difficulty in arresting the flow of blood after the operation. So exempt was he, indeed, from apprehending serious hæmorrhagy, that he was in the practice of letting blood from hæmorrhoidal tumours in certain diseases, and he expresses his surprise that this operation is not more frequently performed.

WISEMAN, DIONIS, LE DRAN, and SABATIER, were all in the practice of excising piles, and yet they record no case of fatal hæmorrhagy. HEY and LIEUTAUD amputated the protruded intestine in cases of prolapsus ani. They all consider the operation with the knife entirely safe; the latter considers it as "*peu difficile, et qui n'est pas bien dangereuse.*"

In the numerous cases of hæmorrhoids, in which WARE employed the knife, he found little difficulty in arresting the flow of blood. He remarks that—

> "The pain which the operation occasions, is really trifling, and the hæmorrhagy which follows, is so slight, that I have rarely had occasion to use any application to check it."

Mr. ABERNETHY had his attention drawn to this subject at an early period in his practice, and often removed with both the scissors and knife, not only the hæmorrhoids, but also the protruding folds of the lining membrane of the gut, which often attend the disease. He states that—

> "It is now twenty years since I first began to remove them freely with the knife and scissors, and I have never met with any circumstance to deter me,

whilst the relief of suffering which the operation has afforded to some, and the scarcely to be expected and complete cure which it has effected in many, have been highly gratifying."

Mr. Abernethy has so little apprehension of hæmorrhagy, that he even permits the parts to bleed after the operation, as long as they are disposed to do so. He adds—

> "Formerly I met with troublesome hæmorrhagy, particularly on account of the blood effused into the rectum, creating an uncontrollable propensity to discharge it per anum, and in this act the wounded parts become again protruded and injured. Since, however, I have adopted the mode of treatment which I have described, I have witnessed no inconvenience of this kind. In general, the patients feel very comfortable, and the anus seems as if there were no disease."

Mr. Home has witnessed alarming hæmorrhagy from amputating internal piles, but is an advocate for excising those which are externally situated. He has never seen a case that terminated fatally.

Montègre recommends both the ligature and knife, and thinks that each may be, under particular circumstances, advantageously used. He has often amputated piles, and has seen no unpleasant consequences from the operation.

From the authorities quoted, it must appear abundantly evident, that our apprehensions of fatal hæmorrhagy after the employment of the knife for the cure of hæmorrhoidal tumours are without foundation.

Previously to the performance of this operation, it is proper that the digestive organs should be restored to health, and that the intestines should acquire the habit of daily and regularly evacuating the refuse matter of the food. The bowels ought to be perfectly emptied before the operation, by such medicines as have been found by experience to answer the purpose, without inducing a continuance of irritation and purging. The bowel being everted to the utmost, by the efforts used in evacuating the fæces, and the parts cleaned by bathing in tepid water, the pile should be seized with a double hook of a breadth corresponding with the diameter of the pile, and when drawn upwards from the bowel it may be removed by a pair of scissors. A protruded and thickened plait of the bowel may be seized in the same way, but Abernethy recommends the use of the bistoury in removing it, because "the depth to which the scissors may cut is uncertain." The incision made by the knife resembles two curved lines joined at each extremity. The long diameter of the incision should be vertical, or in the direction of the bowel, both for the removal of piles and diseased folds in the rectum.

There are other cases in which the sphincter ani is so much relaxed, that the anus readily admits the introduction of the two first fingers. The integuments of its border hang like a circular tube between the nates, to the extent of two inches, assuming the appearance of prolapsus ani. During the effort at stool, a number of red, firm, circular, tumours descend, occasioning great pain, and constant tenesmus.

For this form of the disease, Kirby operated in the following manner:—The patient is first disposed on the table, in the same manner as in the operation for lithotomy. Pass a large curved needle carrying a strong ligature through the entire circle of the pendulous projection. The operator directs the patient to force gently downwards, while he draws the parts firmly towards him, and then removes them at one stroke of the scalpel.

The hæmorrhoidal tumours being removed, in either way, the wounds should be suffered to bleed as long as they are disposed to do so, and afterwards the parts should be completely replaced by means of the finger previously anointed. As irritation is a principal cause of hæmorrhagy from the small vessels, and as that is likely to be occasioned by any part of the bowel being lodged within the gripe of the sphincter, and compressed by that muscle, this part of the operation should be particularly attended to. The patient should now be placed in a horizontal position, the nates should be exposed, and the parts surrounding the anus should be frequently bathed with cold water, in order to prevent fluxionary movements towards the site of the wound.

Diminishing the temperature of parts, is one of the most potent means we possess, both of preventing hæmorrhagy, and of lessening inflammatory action: and this seems to be best accomplished by the continual evaporation which is going on when parts are frequently wetted.

If the patient be placed in a warm bed after the operation, and these precautions neglected, hæmorrhagy will in some rare instances occur. If the blood flow into the rectum, an uncontrollable propensity to discharge it per anum will be created. In this act the wounded parts will become injured and protruded. By adopting the mode of treatment we have described, no inconvenience of this kind will be experienced. In general, the patient feels in an hour after the operation, little or no uneasiness.

Should hæmorrhagy occur in despite of the precautions already noticed, we happily have it in our power to completely arrest it by the introduction of compressed sponge into the rectum. The sponge should be permitted to remain in this situation until the mouths of the bleeding vessels are closed by the adhesive inflammation. A roll of charpie coated with the whites of eggs, is sometimes introduced with the same view.

As foreign substances in the rectum create some uneasiness, and at times excite a disposition to go to stool, DUPUYTREN resorts in such cases to the use of the actual cautery. His method is to direct the patient to void any blood which may remain in the bowel, to wash the part perfectly clean, to search for the point from which the blood flows, and then to apply the actual cautery at a *white* heat. The authority of Dupuytren is a sufficient warrant for us to resort to this remedy where the exigencies of the case demand bold measures.

In the after-treatment of a patient who has submitted to any of these operations, it is vastly important to keep the parts as long undisturbed as possible. For this purpose, the patient should be restricted to such diet as will leave the least residue. If the opening medicine which had been prescribed with a view to clear the bowels before the operation should be disposed to affect them afterwards, some opium may be given to prevent it.

With these precautions, patients may not have an evacuation for five or six days. Abernethy states that he has known the bowels remain ten days undisturbed, under such circumstances. During this time the wound nearly or entirely heals, and the subsequent discharges from the bowels are unaccompanied by hæmorrhagy, irritation, or the descent of any part. As this disease is frequently connected, however, with a disordered state of the digestive organs, sensations requiring alvine discharges for their relief, will require us to administer something for this purpose, after the lapse of two or three days. A little castor oil, and an injection of cold water with a view to dissolve the hardened fæces collected in the rectum, will procure an evacuation more easily than any other means. When a sufficient discharge has taken place, any part that may have descended should be replaced. A small dose of laudanum may be given to stop any further effect from the purgative medicine.

In connexion with our notice of these operations, it is proper to state, that there is after them, and particularly after Kirby's method, a tendency of the anus to excessive contraction. This inconvenience, when it does occur, may be readily removed by a few introductions of the rectum bougie. The occurrence of this accident does not constitute an objection to the removal of piles with the knife, as it has quite as often happened after the use of the ligature. The employment of the bougie becomes as essential in the one case as in the other.

Before concluding our remarks on the removal of piles by means of the knife, it may be well to state, that Kirby's operation, which differs but little from Hey's method in the case of prolapsus ani, seems best adapted to hæmorrhoids connected with the pendulous ring around the anus, great relaxation of the sphincter, with some prolapsus of the intestine. After the parts have been removed in the manner already described, the prolapsus will not again take place, which Mr. Kirby explains "by attributing the support of the parts to the contracted callous circle which forms the margin of the anus, and the restraint which is thus set to the yielding disposition of its proper muscle."

Montegre has noticed a neuralgic form of hæmorrhoids, and claims for himself the honour of first drawing the attention of the profession to this peculiar disease. He represents the affection to be characterized by the following symptoms. The pains are very acute, and exist independently of strangulation of the pile, or of inflammation, and may be always mitigated by pressure. The nervous character of the disease is evinced by the pains being intermittent and moveable. After a short intermission they will often return with such violence as to cause the suffering patient to compare his lancinating pains to innumerable darts of fire, which pass up his rectum with the rapidity of electricity.

The pain of this form of hæmorrhoids is not usually so acute as is above stated, but it has the property common to all nervous affections, to reduce the patient to a state of extreme disquietude and discouragement. This complaint often succeeds inflammation, and will frequently continue after the removal of the cause, under the influence of which it became manifest. This disease often continues for months, and is at intervals aggravated by a temporary return of inflammation. Our author states that it sometimes becomes permanent, and thus embitters existence to a degree which is scarcely supportable.

For the removal of this disease, he relies chiefly on cold injections, particularly before going to stool, and the *douches ascendantes*, or, in other words, a small stream of cold water directed for a short time against the anus. During the greatest suffering of the patient, the pain will either cease, or be greatly mitigated by the application of the *douche*. Should the cold injections be found insufficient to keep the bowels soluble, mild laxatives must be used.

Though he has great confidence in the cold ablutions, cold injections, and cold douches, yet he admits they will sometimes fail, and at last the disease will yield to the action of means, from which, judging by their known properties, little might be expected.

Among the remedies which he notices as having either proved useful in his hands, or as having been recommended by others, he enumerates the oils of almonds, of olives, of linseed, of roses, of marsh mallow, of elder, of amber, &c. He states that the *water betony* has been used as an internal medicine, with advantage. It is employed in the form of a decoction of either the dried or fresh leaves. A decoction of the *great valerian* has been also used with singular efficacy.

A number of external applications are recommended, such as a poultice made of roasted onions and pears, mixed with the oil of roses and saffron. The following preparation is said to have acquired great reputation in Germany. The secret was purchased from WOLF by the Prince of Hesse. Take a handful of the bruised flowers of flax. (*Antirrhinum linarie,*) and then boil them in four ounces of hog's lard, strain and suffer the mixture to cool. Afterwards add the yolks of two eggs, and thoroughly mix them. This unguent, applied to the pained part, is said to mitigate the sufferings of the patient, in a manner at once "prompt and wonderful."

He also recommends the external use of the narcotics. Hyosciamus, belladonna, stramonium, opium, are all reported to act favourably. A mixture of the unguent of stramonium and Goulard's extract, has long been a favourite prescription, in Philadelphia, for this disease.

After urging on our notice these remedies, with many others which I do not think it necessary to introduce in this place, he again dwells on the superior efficacy of the cold *douches* and injections. The water used for this purpose should not be of a low temperature. Very cold water thus employed will sometimes cause a revulsion, which may prove especially hurtful in persons subject to diseases of the lungs. Every advantage may be obtained by using the water at a medium temperature.

Montegre reports the following, among other cases, in illustration of the efficacy of this method of treatment. A man, thirty-four years of age, of a bilious temperament, born of hæmorrhoidal parents, and subject to hæmorrhoids in a mild form from his infancy, had experienced for six years long and painful attacks of this form of piles. His last attack remained three months, without any mitigation of his sufferings from the remedies used. Every stool aggravated his pains, he was unable to sleep, and at last was reduced to a state of despair, and refused all nourishment. In this state he was prevailed on to commence the use of the douche, which he administered himself, by means of a large syringe with a curved pipe. After using this remedy for four or five days his pains ceased, and he has had no return of them for five years.

In the work under consideration, every disease to which the rectum and anus are subject, is elaborately treated. It would extend this review beyond the allotted bounds, were we to give an analysis of every division of the author's essay. Those, therefore, who wish to profit by all his valuable observations, by his method, his clearness, and his erudition, we must refer to the work itself, or to the long article in the *Dictionnaire des Sciences Medicales*, of which it is little else than a transcript. If our author has erred in his manner of treating this subject, it is in being too diffuse, and in occupying too much space in controverting points long since exploded.

XII. *Traite des Plaies de Tete et de l'Encephalite, principalement de celle qui leur est consecutive; ouvrage dans lequel sont discutees plusieurs questions relatives aux fonctions du système nerveux en général.* Par J. P. GAMA, M. D. Professeur a l'Hopital Militaire d'Instruction du Val-de-Grace. Paris, 1830.

Treatise on Injuries of the Head and of Encephalitis. By J. P. GAMA, M. D. &c.

MANY of the most distinguished members of our profession entertain the opinion, that a stricter union is required than has heretofore existed between medicine and surgery, diseases and accidents having between them so many intimate pathological relations and principles, as to rest on pretty nearly the same base of treatment, excepting mere mechanical contrivances and manipulations. Perhaps the principal justification of this division into medicine and surgery, of the executive duties of the profession, exists in the circumstances of surgery requiring a vivid and detailed knowledge of anatomy, and a certain adroitness of hand, which is as much a peculiar gift as the art of poetry, whereas the practice of medicine can, and indeed most frequently does, dispense with both. The value, however, of recognising common principles to the two departments, is proved by the easy transition from the scientific practice of surgery to that of medicine, and by the most skilful surgeons having also become the best general practitioners.

Influenced by similar convictions, the author of the work before us has allied to a sound physiological basis, the phenomena and symptoms arising from accidental injuries of the head and spinal marrow, and has harmonized with the general principles of practice, the indications for their cure. By pursuing this course, he has been able to show, that the phenomena heretofore attributed to a mechanical compression of the brain, have resulted from positive alterations in its substance, and from inflammations, the consequence of the latter; that concussion and congestion, when solitary, produce merely negative symptoms, but when complicated with encephalitis as a consequence, they are then attended with convulsions, spasmodic motions, and irregularities in the actions of the viscera; that when paralysis follows encephalitis, it results from a disorganization of the brain; and that congestion, inflammation, and disorganization, very commonly have no perceptible interval between them. His dissections of patients have also led him to the conclusion, that there are no symptoms, during life, whereby we can discover the morbid changes of consistence and appearance which the brain is undergoing from inflammation.

By the process of uniting physiology and pathology, Mr. Gama thinks that his experience has established the following precepts. 1st. That the immediate union of all wounds of the cranium, without exception, is indispensable to the preventing of encephalitis, and obtaining a rapid cure. 2d. That permanent local bleedings should be immediately resorted to, in preference to phlebotomy, or the reiterated and abundant application of leeches at distant intervals of times; for the reason that the former acting continually afford the brain time to reinstate itself without reaction. 3d. That the trepan should not be used, except for removing loose particles of bone and foreign bodies. 4th. That revulsives are generally useless when the local treatment is proper, and are often injurious, and that they should not be employed until the cerebral irritation begins to decline. 5th. That cold is a difficult and dangerous application; and 6th. That aliments should not be withheld after a certain time, when the digestive apparatus is sound.

The treatment of wounds of the cranium has always been considered highly difficult and embarrassing, and has undergone several important modifications in its progress from the most ancient times to the present. Mr. Gama, in a preliminary chapter, has, with sufficient propriety, given a sketch of its various epochs, and of the attendant pathological notions: by this course he perhaps satisfies us better in regard to his own views. He opposes the opinion of MORGAGNI and HALLER, that HIPPOCRATES knew of encephalic lesions on one side producing paralysis on the other, and he thinks it well ascertained that this and the other precise anatomical notions attributed to the school of Cos were additions of a later period.

It appears, however, that there was a good deal of exactitude among the ancients in the discrimination between apoplexy and paralysis, the former from the general prostration of the intellectual and motile powers, which resembled the effects of a stroke of lightning or the supposed influence of the stars, was called *sideration;* the latter was supposed to be produced by a vitiated state of what they termed *pneuma.*

No important change was made for many centuries in the doctrines concerning wounds in the head, excepting the gradual confounding of apoplexy and paralysis, and the introduction of many preposterous compounds, as local applications, to detach scales of bone, to dry up discharges, and to consolidate fractures. In 1518, BERENGER DE CARPI undertook a reformation on points of practice and pathology, and by a judicious study of the Arabians, and many original observations, succeeded in ameliorating the former, and in casting considerable light on the latter. At this time wounds of the head were very generally kept open, to depurate them and to get rid of vitiated humours.

AMBROSE PARE instituted the practice of closing immediately all incised wounds of the cranium, so as to withdraw them from extraneous influence, and when inflammatory symptoms followed, of treating them by scarifications and leeching on the lips of the wound, or as near as possible to it.

GAB. FALLOPIUS taught, that a suppuration might occur in the brain on the side opposite to the original injury. In the progress of intelligence on lesions of the brain, cases of recovery presented themselves where large surfaces of brain were exposed, and even considerable quantities of its substance removed and lost. It was also observed, that where occult suppurations occurred, the patients died, and the inference was drawn, that death resulted from these depots being permitted to remain; hence was introduced the great freedom of trepanning, which was finally carried to as abusive an extent as ever happened to a supposed remedial process. It is perhaps impossible to read the accounts of POTT and DESAULT on this subject, and the murdbrous dogmas which prevailed at their time, without shuddering at the sacrifices of life which they produced.

Among the important ameliorations of doctrine on wounds of the head, should be mentioned those produced by the Academy of Surgery, in Paris, having offered, (about the year 1766,) as a subject of a prize essay, "The establishment of a theory of counter-blows, (contre-coups,) in injuries of the head, and the practical consequences to be deduced from it." The result of the inquiries on this subject was the confirmation of the ancient hypothesis, that when a part of the body is paralytic, the seat of the disease is on the opposite side of the brain; and to this SAUCEROTTE added, that if one side be paralytic, and the other convulsed, the disease, or at least its most active state, is on the convulsed side, but if there be convulsion alone, the disease is on the opposite side.

POTT improved the practice of England, by saving the scalp, where former surgeons directed it to be removed, he was, however, unreasonably fond of the trepan, and gave a currency to the use of it, which has been felt in this country even to the present time. Desault on the contrary, his contemporary in France, educated with the same propensities, penetrated through the errors of the practice, and dispelling the clouds of prejudice which surrounded it, boldly denounced the trepan, after having proved incontestably at the Hôtel Dieu of Paris, that more patients died after trepanning, than under similar circumstances of injury, where this practice was not adopted. This may be considered as the first great step in modern times, to an improved treatment of injuries of the head, and succeeding experience in all quarters has served to give it additional confirmation. Though it must be admitted, that there are a few of the old regime of surgeons who retain their penchant for the trepan, for example, Mr. BOYER.

About the middle of the last century many experiments were instituted to resolve the problem of compression of the brain. A case, cited by LAPEYRONIE, of a wounded man, who became comatose whenever pus accumulated on the surface of the brain, gave a tone to opinion on this subject which had the effect of confounding the symptoms of compressed brain with those of inflammation. In injuries, therefore, the error was generally committed of attributing paralysis to the mechanical action of the blood supposed to be extravasated from the vessels, instead of to inflammation of the brain. Mr. SERRES' experiments, on the contrary, have gone to prove that liquids pushed with care between the dura mater and the brain do not produce paralysis. Numerous clinical observations also go to prove that very extensive and deep depressions of the cranium may produce no marked effect upon the functions of the brain. Mr. Gama, (p. 229,) mentions his having met at Strasbourg a woman of seventy-three years of age, who, for three years, had borne a depression of the right parietal bone as large as the hand, and which gave to the cranium an irregular form. She had not experienced at the moment of the fall any cerebral derangement, and neither had she felt any since. Facts of a similar character are now in the personal experience of numerous members of the profession.

M. Gama has also given some good expositions of the application of physical laws to injuries of the cranium; many of them of course can have but little novelty, as they consist in the development of the doctrine of vibrating bodies of different forms and densities. The experiment is familiar, that when a hollow globe is struck at right angles to its surface, if its strength be superior to the momentum of the impinging body, it is momentarily depressed at the point struck, and also at the opposite point, while the other portions recede from the centre, afterwards the latter approach the centre, and the former points recede, and so on, successively, till the force of impulsion is expended. But if any part of the circumference of the globe is inadequate to convey the impulsion, this part is fractured. Fractures, therefore, may not only occur at the place struck, but in any other place: the latter are called indirect fractures, or those from *contre-coup*, and they exist much less frequently than the others.

As the cavity of the cranium is occupied by the brain, it most commonly happens that much of the impulsion from blows is received also by the latter, and hence the various lesions which violence upon this organ produces. With the view of giving some degree of precision to his ideas in regard to the tracks in which such impulsions are communicated, M. Gama fixed, in an oval glass mattrass, skeins of thread running in different directions, and filled the vessel with isinglass size, which, upon cooling, became near the consistence of the brain. The vessel was then corked. With this ingenious device, he found that strong percussions on the circumference of the mattrass, communicated vibrations to the whole mass, in addition to which there were principal vibrations passing in particular directions indicated by the threads. Moderate impulsions were seen principally at the point struck, and extended themselves from it to small distances around; on the contrary, severe concussions caused the size to be for a moment detached from the vessel at the point struck, and also at the opposite or diametrical point, the impulsion was then exhausted by vibrations over the mass of the size not following any determinate direction. These effects, when applied to the head, would of course be somewhat modified by its shape and variations of thickness, but the experiments serve at least to give us some general notions on the subject.

When the mattrass was reversed, and the neck struck from below, the threads vibrated from the centre of the mass to its circumference, and the size was not detached at the opposite point. We may here presume an analogy between the vessel and the head, when impulsions are communicated to the latter through the vertebral column.

The physiological speculations introduced into this work, form a highly interesting portion. The author appears unfavourable, (See page 90,) to the notion of the ancients, which has been latterly reproduced, in a more elaborate shape, by Mr. CHARLES BELL, of there being two orders of nerves, one for sensibility, the other for motion, and which was supposed to explain the phenomena of paralysis. He considers that there is no line between the mechanical or contractile movements, and those which are inseparable from sensations. That there is but one vital principle, from which emanates both sensation and motion.

"Mr. Charles Bell says he is by no means of this advice, and his opinions have revived questions formerly adjudged. We read in his work, that besides the nerves of vision, of smell, and of hearing, there exist four other orders entirely different in their functions, and interwoven so as to form but one order. These are the nerves of sensation, of voluntary motion, and of respiratory motion, and in fine, nerves which, because they have not the qualities which characterize the three other orders, seem to unite the body into a whole, for the accomplishment of the functions of nutrition, growth, decrease, &c. Mr. Charles Bell announced that he was going to dis-intricate the nervous system, but where is the evidence of his success? What does he mean by those four orders of nerves which have different functions, and which yet form but a single order? What idea does the last of these orders present, whose nerves, because they want the qualities of the three other orders, re-unite the body into a whole? Why not admit in all its simplicity, the division which he disfigures here, that of the life of relation and of organic life?"

M. Gama also denies that the experiments performed in England and France, to prove that the posterior fasciculi of spinal nerves are those exclusively of sensation, and the anterior ones those exclusively of motion, have by any means succeeded in demonstrating such a theory. One of its most zealous defenders, (Journal de Physiol. experim. tom. 2d, p. 366, et suiv.) admits that whenever the posterior roots are excited, contractions are produced in the corresponding muscles. Facts seem to establish that sensation is not exclusively in the posterior roots, more than that movement is in the anterior. Our author has obtained by galvanism, contractions with the two kinds of nerves.

M. G. has emitted the following ideas on taste, (gustation.)

"Let us remark at first, that in spite of the efforts and talent of men who have entered upon the inquiry, in spite of the most numerous researches and experience, it is still unknown whether gustation has an appropriate nerve. I will say in anticipation, that it cannot have. The apparatus of taste is composed, besides the tongue and its nerves, of the membranes on the interior of the mouth, of the pharynx, of the lips, and of the salivary glands. None of those organs exercises an action in the function under discussion, but inasmuch as it is united to the others. We do not taste the most savoury body in placing it upon the tongue carried designedly beyond the lips; it is not tasted in applying it to the palate: gustation results from the combined action of the opposite parts of the buccal surface."

In some of these observations at least, we cannot but think our author mistaken.

So much for the physiological and pathological views of M. Gama. We shall now proceed to sketch his modes of treatment.

When punctures of the scalp and pericranium are, as is commonly the case, followed by erethism and slight inflammation, his remedy consists in dilating moderately the wound, then applying compression to it, and afterwards small folds of linen soaked in water. If the inflammation be severe, he recommends leeches to the part, to prevent the extension of the inflammation to the encephalon. For simple contusions, attended with extravasation of blood, or infiltration of it, he recommends a graduated compress, fastened on firmly, and sometimes an incision to the cranium, to give vent to the blood. In contused or incised wounds, he adopts an identical plan of treatment, believing that the only useful end in their distinction is to give a more methodical exposition of their causes. The first indication is to unite wounds, and all others are subordinate to it. He discusses, (p. 29,) the objections of hæmorrhage, and of suppuration, to this mode, and considers himself to have proved, by the cases which he narrates, their futility. He therefore strongly reprehends the ordinary custom of separating the lips of such wounds, and of charging them with a succession of irritating dressings, such as lint and stimulants of different kinds.

In regard to concussion of the brain, (commotion,) he adopts the usual routine of first recalling the patient to consciousness by dry frictions; or frictions with alcohol, vinegar, or even boiling water, or ammonia in extreme cases. When the patient is resuscitated, he is to be kept from a relapse by sinapisms and blisters on the arms and legs, but by no means near the head, as they attract the blood to the regions on which they are placed. When the organs begin to resume their activity, the most critical period of treatment arrives: bleeding in the arm or foot is then highly useful, but while resorting to it to keep from the brain an improper quantity of its natural stimulant, the blood, it is also to be remembered, that if the quantity drawn be excessive, it produces a dangerous collapse of the system, which may end in death.

When there is an intimation of encephalitis, M. Gama considers that there is no remedy equal to leeching, owing to its evacuating so completely the sanguine capillaries. And as this disease is to be dreaded in most cases of severe wounds of the head, he recommends us to approximate, by strips of sticking plaster, the edges of the wound, leaving intervals between the strips. In these intervals are to be applied from twenty to thirty leeches, according to the severity of the symptoms, and which are to be replaced by others, as the flowing of blood which they provoke diminishes.

> "This series of applications must last from two to six days, or even more, if the persistence of the accident require it. The weakness which follows abundant capillary evacuations should not be feared; patients quickly surmount it; while encephalitis would cause death. When it is thought proper to moderate the flow, it is necessary to diminish the leeches by one-third, until their application be entirely suspended. This first interval should be of twenty-four hours, then the depletions should be more frequent or scarce, until the probabilities of cure are sufficiently numerous to leave no fear of a relapse."

Thus conducted, the treatment lasts ten or fifteen days, or more, during which the important object is, that the bleeding should be so managed as to calm completely the symptoms, and to dissipate every trace of irritation. So long as the brain perceives any excitement, either locally or generally, in head-ache or heat, this mode of capillary evacuation is to be continued. The complete restoration of the cerebral functions is the indication of recovery being at hand, and convalescence may then be brought to a happy issue by regimen and prudence. (p. 424.)

Our author thinks that the first evacuations should be made upon the injured point, but afterwards the forehead and temples are better, as the anterior lobes of the brain inflame more readily than other parts of this structure, and as a depletion there extends its sympathetic influence elsewhere. The neck is a much less efficacious place than the one indicated, notwithstanding the greater quantity of blood which it may furnish, by the jugular veins being punctured. Cupping with scarifications M. G. considers as a very inferior remedy to leeching, from the excitement which it produces and the inconsiderable quantity of blood obtained by the process. The opening of the temporal artery is a remedy of the first importance, though unhappily it is now too much neglected.

M. Gama gives a qualified approbation of the ordinary treatment by the application of cold to the head, as its effect is to absorb the superabundant caloric discharged from the brain and the adjacent parts. In cerebral inflammations, however, he considers that there are but two periods favourable to their annihilation by the action of cold; the one is their commencement, and the other their decline. In the interval of these stages, sanguineous depletion is so useful that cures are rarely obtained without it. In supposing, says he, that the blood may, by the action of cold, be expelled from the irritated tissues at first, yet it combines so quickly with an irritated tissue which it has once injected, that there is great danger of disorganization unless this process be arrested, and in the case of the brain experience shows that this disorganization is fatal. The application of cold is less worthy of the confidence which it enjoys, because when encephalitis does not promptly yield to its sedative influence, it is aggravated: for if the evacuations which were necessary have been omitted, the cold masks the inflammatory symptoms, keeps them stationary, and gives time to the cerebral affection to advance. If the attempt be made to unite cold with the application of leeches, they either refuse entirely, or take indifferently, from the capillaries being constricted. In regard to the usage sometimes resorted to, of making cold applications to the head and plunging the rest of the body in a warm bath, its effects are extremely uncertain. If the cold moderates the congestion, the heat augments it, by accelerating the circulation, and the probable result is an equilibrium of power, to say the least. Our author considers that the best way of applying cold, is by compresses dipped in water kept at nearly the freezing point. The first applications should be continued a long time, then the duration should be gradually diminished, until the application is finally discontinued. By these precautions reaction is prevented, and also the liability to catarrh, from the displacement of the apparatus, when pounded ice is applied in bladders.

The summary of his arguments on cold applications is, that they are never indispensable, are but rarely useful, and then serve rather to mask the symptoms of encephalitis, and thereby to cause the loss of precious time, which might have been employed in the use of means more potent and effectual.

We consider M. Gama's observations on the use of revulsives, as not the least valuable of his opinions. He starts on this point with ideas sufficiently recognised by modern pathologists, that revulsion has for its objects to excite a super-action upon sound organs, and thereby to annihilate that of diseased ones. But it is to be remembered that this result cannot be obtained when the inflammations are violent and acute, for it is then necessary to moderate them before such a resource is available. Moreover, revulsion is of very difficult application when encephalitis proceeds from wounds of the brain, for the cause being local, the affected parts must undergo a succession of changes before they can be brought to the normal state.

In regard to purgatives, they should be given in fractions of doses, with the view to obtain a prolonged series of evacuations, whereby a continual excitation of the stomach and intestines is kept up. The old practice of Desault, of a grain of tartar emetic, dissolved in a large quantity of watery drink and given in very small doses, is recommended. The revulsive effect may in this way be obtained, in cases where the inflammation is slight. M. Gama, however, does not seem to put much reliance on this treatment, and tells us to remember that the obstinate constipation so common in the first days of cerebral inflammation, is a counter-indication to revulsives, and that they should not be prescribed till the constipation begins to disappear, which is in itself a proof of returning health. The stomach, owing to its close sympathy with the brain, yields with difficulty to revulsives; the colon rather easier, and the rectum is probably the most suited of the internal organs to admit this process of treatment. Therefore, demulcent or slightly stimulating injections may be used in the first periods, when there is obstinate constipation: afterwards the injections may be made more irritating. M. G. seemingly from deference to the experience of M. Fouquier, makes a sort of hypothetical acknowledgment of the advantage to be derived from strychnine, under treatment thus regulated.

Revulsives applied to the skin, under the form of blisters, sinapisms, and ammoniacal preparations, are, like cathartics, only useful when the acute inflammatory action has subsided, under other circumstances they are more likely to prove injurious by exciting the brain.

When sympathetic irritations of the stomach, liver, &c. are excited by the encephalitis, they are to be treated like primary affections of the same organs.

The following observations on diet are so important, and so applicable also to other affections, that we shall give a close translation of them:—

"The diet should be severe so long as the symptoms preserve their violence, or an effort is making to keep them off; but when resolution is manifested, an absolute abstinence from aliments would be injurious, and experienced practitioners take good care not to fall into such an excess. They know that the stomach, too long deprived of its natural stimulants, when the desire for them is exhibited, becomes irritated, and that its suffering may, in patients attacked with encephalitis, radiate to the brain and renew its affection. Would it not in effect be to expose patients, who are just freed from an encephalitis, or have been menaced with it, and whose digestive organs are sound, to the accidents produced by a privation of aliments, if they were kept on too severe a diet? To the same extent as the dangers of a premature alimentation are to be feared, so are those of a contrary excess to be avoided. Light soups with the addition of eggs, small quantities of farinaceous matter, and light gruels, should therefore be granted so soon as the encephalitis begins to dissipate, and the digestive organs having remained without irritation, show themselves disposed to act. This nourishment is afterwards to be gradually augmented, accordingly as the first trials show its happy effects. It is to be remarked, besides, that aliments then act in a manner corresponding with revulsives; that they produce a gastro-intestinal stimulation, favourable to the disappearance of cerebral accidents, and that it is not rare to see the inactivity of the intestines dissipated under their influence, after having resisted medicinal agents. Cerebral phlegmasiæ, when exempt from gastro-enteritis, do not seem susceptible of being worn away, like those of the digestive apparatus, by a prolonged and very severe diet. Wine, and all stimulating liquids, should be positively forbid, because they excite with too much facility the sanguineous system and the nervous apparatus."

From the preceding exposition of M. Gama's work, it is evident that there is sufficient novelty in it to render it interesting, and as many of his precepts are of a practical nature, we, with hearty good will, recommend its perusal.

W. E. H.

BIBLIOGRAPHICAL NOTICES.

XIII. *The Dyspeptic's Monitor; or the Nature, Causes, and Cure of the Diseases called Dyspepsia, Indigestion, Liver Complaint, Hypochondriasis, Melancholy, &c.* By S. W. Avery, M. D. New York, 1830. pp. 152. 8vo.

We notice this little work, not for the purpose of aiding its circulation among general readers, for whom it is professedly designed, for we very much doubt the salutary tendency of works thus addressed, but in order to make our readers acquainted with its contents, and to recommend it to their favourable reception. If its pathological views are not altogether novel, it lays down principles of treatment, based, as it seems to us, on the true character of the disease, and worthy of arresting the attention of the profession.

Dr. Avery divides derangements of the digestive organs into three species. The *first* consists in an enfeebled condition of the stomach, which secretes a preternatural quantity of highly acid fluid, unfit for the process of healthy digestion. The prominent symptoms are, incessant, dull head-ache, especially aggravated after eating—flatulence—an uneasy gnawing sensation in the stomach when empty, usually mistaken for hunger—heartburn—acid eructations and belching, especially after eating—profuse flow of saliva into the mouth—tongue lightly coated, and unpleasant taste in the mouth in the morning. There is sometimes thrown up a short time after eating, especially the breakfast, a considerable quantity of limpid, sour fluid, so acrid as to give a scalded appearance to the tongue and throat; sometimes it is mixed with bitter or oily matters, but rarely with any of the food taken. If indigestible food, as fatty meats, or a considerable quantity of any fluid be taken at meals, for some hours after the distress is increased, all the symptoms aggravated, and a general feverish condition induced. Notwithstanding all this disturbance in the stomach, the bowels often continue nearly regular, and the action of the liver not seriously deranged, particularly in such as have frequent acid eructations. This species is often attended with a train of symptoms, which pass for nervous, and which are only to be overcome by correcting the acidity of the stomach. A part of this acid no doubt arises from the ingesta undergoing the acetous fermentation during digestion: but much the greater part of it is a secretion of the stomach—a vitiated gastric juice, caused by indigestible or improper food being taken into an enfeebled stomach. This view of the subject has a most important bearing on the treatment of the disease. It inculcates the necessity of more carefully avoiding the taking into the stomach substances of an indigestible nature, than of such as are merely prone to run into the acetous fermentation.

The *second species* is marked by hepatic derangement combined with imperfect digestion. This form is apt to occur, or become aggravated, during summer, and to remit on the coming on of cold weather. Its leading features are connected with bilious disorder, as remarkable depression of strength with languor and listlessness, especially on rising in the morning, bitter, disagreeable taste in the mouth, yellow fur on the tongue, torpid and irregular bowels, high-coloured urine, restless, feverish nights, and progressive emaciation. The patient often complains of vague pains shooting in various directions, sometimes in the shoulders, back of the neck, and at other times in the sides or pit of the stomach, and a sense of weariness in all his limbs; almost constant aching in the back and loins, with a numbness of the right side and arm, or a burning sensation at the pit of the stomach. The complexion is often of a dingy hue, and the eyes occasionally have a yellow tinge. The state of his strength is very uncertain and variable, sometimes he can scarcely lift up his hand, and soon after he will walk a mile without much fatigue. All his complaints are greatly aggravated by eating, and he obtains so much relief from fasting, that he dreads the return of meals, which invariably add to his mental, as well as bodily suffering, by plunging him into gloom and melancholy, till finally his temper is rendered so irritable and impatient, that no fortitude can repress its sallies.

The *third species* depends upon a morbid sensibility or irritability of the inner surface of the stomach and bowels, with more or less hepatic derangement. It presents itself in two forms, either with or without *marked* symptoms of indigestion. In the former, it often goes to the extent of painful digestion, especially on taking any stimulant article; in some cases, any solid substance, as a crust of bread, will bring it on, so that the patient is obliged to confine himself to light fluid nourishment, in order to avoid the gastric distress, the tormenting head-ache, the nervous agitations, the palpitations, and finally, the faintness, nausea, and vomiting, that is apt to ensue on the least error of diet. When the disease arrives at this stage, the head is seldom free from pain; solid food is rejected without having undergone the least change, after remaining for hours in the stomach; the bowels become torpid; the complexion dingy; the strength and flesh waste rapidly, and the nights are restless, feverish, and disturbed by frightful dreams. The function of the liver is generally much deranged, producing pain in the side, slight hacking cough, a sense of weariness or pain in the back, loins, and limbs, listlessness, with dejection of mind and gloominess. A most distressing train of nervous symptoms is often connected with this form of the disease. The most trifling occurrence frightens and agitates the patient, produces palpitations, and shows his whole nervous system to be acutely sensible. His bowels also become so morbidly irritable, as to be acted on violently by the smallest quantity of cathartic medicine, producing pain and uneasiness, which induces the patient to delay its repetition as long as he possibly can.

The other form of this species is the most melancholy of all these derangements. It is usually known by the names of low spirits, hypochondriasis, melancholy, &c. and is extremely various in its character and forms. Indigestion seldom forms a prominent feature of the disease; often, indeed, there are few or no symptoms of such derangement present, in which case the true seat and nature of the disease may be wholly overlooked. The persons most subject to this form are generally past the meridian of life, and such as have been engaged in active business, particularly in hot climates. Flatulence, eructations, sense of distention and weight at the stomach after eating, irregular bowels, &c. are present in some cases; in others, there are no indications of bad digestion, or at least very slight ones. When they do exist, however, they are apt to be overlooked in anxiously attending to the sympathetic affections of other parts. In some instances the head is affected with giddiness, and confusion of ideas, ringing in the ears, and indistinct vision. In others, the action of the heart becomes exceedingly irregular, throbbing, and beating violently against the side, now and then intermitting, and occasioning great distress and anxiety. Sometimes there is severe smarting and pain in voiding the urine, which is often scanty, turbid, and high-coloured, then again abundant and colourless. But it would be fruitless to attempt to give a description of all the varied forms of this Protean disease; one character, however, is common to them all, and that is the most dreadful mental dejection, and a disposition to magnify every unpleasant feeling, and to look upon their complaints as incurable and fatal.

The bile in the worst forms of this species is often greatly altered from its healthy condition. it becomes thick, ropy, and tenacious, like bird-lime, and so acrid as to irritate and excite excessive pain in the parts it passes over.

Causes.—Undoubtedly the most common of all the causes of derangement of the digestive organs, is eating too much, either at one repast, or from eating too frequently. Few are content with the small quantity of simple nourishment which nature actually requires, but almost all indulge, more or less, in the pleasures of the table, and not unfrequently yield to the strong incentives of variety, high seasoning, stimulating drinks, &c. to prolong them to an immoderate extent. This is emphatically the case in this country, where the table of all classes is loaded with greater variety and profusion than is common in Europe, and hence dyspeptic complaints prevail to a considerable extent among our middling, as well as opulent classes, while in England they are mostly prevalent among the higher and easy ranks of society. Another prolific source of these complaints, is the quality of the aliments habitually taken. Almost all persons who do not labour, take more animal food, or food of high nutritious qualities, than is consistent with a healthy condition of the system, and, finally, end in wearing out, or at least impairing, the tone of their digestive organs. The cheap rate at which spirituous liquors is obtained in this country, renders them a common cause of this affection. The want of fresh air and habitual exercise, protracted or repeated attacks of remitting or intermitting fever, habitual costiveness, and last, though not least among the physical causes, the use of tobacco, may all be set down as efficient causes in the production of these derangements. The moral causes, a fertile source of these complaints, may be said to consist in all immoderate emotions of the mind from whatever cause, if long continued, and which are of a depressive or disagreeable character.

Treatment.—In conformity with the view taken of the nature and cause of these derangements, the chief reliance is placed in their management, or a regulated system of diet. The dyspeptic, if he hopes for the return of health must go back to the simple dictates of nature, and content himself with plain fare in moderate quantities. If he finds animal food to distress him, he must lay it aside altogether, and live on milk, soft boiled eggs, bread and rice. Such light and digestible food is not only called for by an enfeebled stomach, but often when this organ performs its office with healthy energy, the liver does not furnish a sufficient quantity of healthy bile to convert more hearty and indigestible food into its natural product; consequently, the bowels fail to be duly excited, and suffer an accumulation of unaltered substances in them, which gives rise to much distress. In such cases, perfect relief is only to be obtained by observing a diet which requires but a small quantity of bile to convert it into healthy chyle. Now, animal food requires more than any other, and fat more than lean, but milk, soft boiled eggs, bread, and the various farinaceous articles, as oatmeal, arrow-root, &c. require comparatively little. Besides the diet, another important part of the treatment is regular exercise in the open air. Without this, dyspeptics cannot hope to give vigour and tone to their enfeebled frames. When, from sympathy with the stomach, the skin becomes dry, harsh, and non-perspirable, it is best relieved by frictions, and daily sponging the body with vinegar and water. To avoid the recurrence of the depressive passions, and encourage cheerful emotions, and a tranquil state of mind, by pleasant society, change of scene, &c. are of great importance in the management of these cases, and ought not to be neglected. Such are the general hygienic principles; their particular application to the different grades of the disease will be best shown in pursuing the subject, in the order adopted by the author.

The *treatment of the first species* consists in adopting such a diet, as will best suit the weakened state of the stomach, in correcting acidity, and restoring the tone of the organ. Most writers on indigestion, have advised a diet composed of animal food when there is great acidity, from the idea that vegetable substances run more easily into the acetous fermentation, and favour the production of acid in the stomach; but later observation and experience have shown that much the greater part of the acid in these cases is secreted by the stomach, and in greater quantities in proportion to the indigestibility of the food taken. Thus, all fried articles, butter and greasy viands, pastry and crude vegetables are particularly prone to produce acidity and heart-burn.

The experiments of Tiedemann and Gmelin, satisfactorily prove that the quantity of acid, even in the healthy stomach, is greater in proportion to the indigestibility of the food. Every dyspeptic knows that green tea, strong coffee, and wine, hurt and irritate him, and produce acidity: that meat remains longer in his stomach and satisfies his appetite longer than bread, and consequently, that it is of more difficult digestion. From all these considerations, it is evident that the practice of confining such as labour under weakened digestive powers and acidity of stomach, to animal food, is founded in error, and that the stomach, in these cases, bears best what excites it the least, and requires the shortest period for its digestion. The diet which succeeds best in a majority of these cases, is bread and milk. The bread should be stale, eaten dry by itself, and the milk taken from time to time as inclination leads. There should be a certain degree of solidity in the food, to enable the stomach to digest it without the production of acidity. Mere fluid of itself will often cause an acid stomach, which renders it necessary for the dyspeptic to avoid as far as he conveniently can, the taking of drinks at his meals, and but very moderate quantities of them at other times. Besides, milk, rice, and soft boiled eggs, constitute an excellent food in these cases. Such is the most rigid diet for the worst cases of this species: often it may be more liberal, and the more digestible meats in moderate quantity allowed at dinner, avoiding fat; and abstaining religiously from all spirituous and fermented liquors. When there is weight and uneasiness at the stomach, dull pain of the head, listlessness, drowsiness, disposition to sleep, or aversion to exercise, and the least depression of spirits after eating, the invalid may be sure he has eaten too much, and he must regulate his next meal accordingly. When the stomach has long been weakened, and the quantity of acid very great, a regulated diet alone will not be sufficient to give immediate and entire relief. Some alkaline medicine to correct the acid state of the stomach, under such circumstances, will be found useful. The carbonate of soda will in general answer this purpose very well; but in obstinate cases, the carbonate of iron, given to the extent of twenty to forty grains, once or twice a day, is very efficacious, not only in correcting the acidity, but in giving tone to the stomach. The condition of the bowels is to be attended to, and costiveness obviated by the use of some gentle laxative; but we dissent from the author in considering senna and salts as such. They are much too harsh and irritating for this stage of the disease.

In the *treatment of the second species*, we have not only the stomach to regulate, but the liver and bowels also. To accomplish this, the diet must be suited to the condition of the stomach, and at the same time be such as is least likely to irritate and excite the liver. Such a diet may be found among the different farinaceous articles, as oatmeal, arrow-root, &c. When the invalid is so enfeebled as to be unable to attend to business, he will do well to confine himself to a diet of oatmeal gruel, which he will relish longer than any thing else of the kind. Those who are able to take exercise in the open air, need not descend so low in the scale of living, but may take bread, milk, &c. During those periods of feverishness, loss of appetite, head-ache, &c. which occur in these cases, and ordinarily are called bilious attacks, the patient should be confined to gruel or barley water, a few grains of blue pill or calomel given at bed-time, and followed by senna and salts in the morning. It is necessary to repeat this medicine every now and then while the feverish attack lasts, in order to correct the vitiated bilious secretion, and free the canal from its accumulation; but it is necessary at the same time of being guarded against repeating too frequently active cathartics, as their tendency is to keep up a state of irritation in the liver, and to weaken the intestines. The best plan of correcting the acrid, thick, and ropy secretion from the liver, is to give every night for a considerable time, a pill composed of blue pill and aloes, in sufficient quantity to produce one gentle evacuation in the morning, and no more.

When, by a steady adherence to the above rules, the tongue becomes clean, the head feels cool and free from pain, the complexion clear, the bowels easily kept regular, and the food is taken with relish, and sits well on the stomach, vast advantages may be derived from a cautious use of bitters and tonics, such as watery infusions of gentian and Colomba, or the sulphate of quinine.

In the treatment of the third species, our first care must be to adopt such a diet as will be least likely to irritate, or furnish acrid matters in the changes it may undergo, and, as far as possible, of such a bland character as shall allow the morbidly sensible surfaces to recover a healthy state. It will be readily understood from what has been said of the farinaceous articles, such as oatmeal and arrow-root, that they are the best calculated to answer that purpose. The next thing to be attended to after the diet, is the regular evacuation of the morbid contents of the bowels. They generally contain much slimy tenacious matter of irritating and poisonous qualities, which occasion those horrible sensations that no language can describe, and it thus becomes necessary to give from time to time active cathartics, till their contents exhibit a more natural appearance. The medicines preferred are blue pill and calomel at night, and castor oil or senna and salts in the morning. These medicines are not to be given more frequently than is actually indispensable, as their tendency is to keep up the irritation of the bowels. The author seems to us to rely too much on the use of cathartics in this and the preceding species. In our hands they have invariably protracted the disease: while it has gradually yielded to the free use of mucilaginous diluents, and the occasional exhibition of small doses of rhubarb and soda. Where the morbid sensibility of the stomach and bowels is not overcome by the above plan, the author advises the employment of the nitrate of silver, as recommended by Dr. Johnson.

Thus far of the treatment of the different species as laid down. A word or two on some incidental points, and we shall close.

A confined state of the bowels is often a source of much inconvenience, and sometimes the principal cause of indigestion. Every effort should therefore be made in persons labouring under a constipated habit, to obtain regular and free evacuations, by soliciting the bowels to discharge their contents at stated times, and by partaking of such food as possesses laxative properties, as bread of unbolted flour, rye bread, and best of all rye mush with molasses, taken freely once or twice a day. An enema of cold water, repeated daily, a few minutes before going to the water closet, will often have an excellent effect in establishing a habit. The white mustard seed is only useful in dyspepsia by acting as an aperient: when it fails to have this effect, it invariably produces flatulence, burning sensations in the stomach and bowels, and feverishness. Hence it is only suited where the bowels are very torpid, the appetite bad, and the whole system languid and sluggish.

Shampooing may impart a temporary vigour to the stomach and bowels, and by causing them to become quickened in their movements, relieve many of those distressing feelings caused by the undue detention and accumulation of food; but it can never with safety be adopted as a regular means to force the stomach and bowels to increased activity, any more than brandy, bitters, or other tonics. It is by putting the digestive organs on lighter duty that we shall enable them to recover their vigour, not by goading them by excessive labour. If, therefore, shampooing is ever used with permanent advantage, it will be by conjoining it with a regulated diet and regimen, and even then it cannot be used with impunity in all cases.

It is unnecessary to dwell in this place on the benefits dyspeptics may obtain from the use of the mineral waters of Saratoga and Balston. Their good effects and proper application are generally well understood.

The free use we have made of the volume before us, is the best proof of the estimation in which we hold it, and we hope no apology will be thought necessary for occupying so much space with a work not written for the profession. If it exhibits less pretension and display than many professional works on the same subject, it will be found, we will venture to say, not the less valuable in directing the management of a very embarrassing class of diseases: at least its precepts are in accordance with our own experience, and we take a pleasure in presenting them in a new shape for the consideration of others.

C. D.

XIV. *Theorie der Krankheit, oder Allgemeine Pathologie.* Von PH. C. HARTMANN, Doct. und k. k. Professor der Heilkunde, an der Universitat, in Wien. Nach dem latinischen Originale, frey bearbeitet, vom Verfasser. Wien, 1823, pp. 644.

Theory of Diseases, or General Pathology. By PH. C. HARTMANN, Doct. of Med. and Professor in the University of Vienna, &c.

The work which we have here announced, was published originally in the Latin language, under the title of "Theoria Morbi," but the author was induced by the solicitations of his class, and of many of his friends, to clothe it in a German dress.

It cannot be expected of us, to give within the short limits of a notice like the present, any thing like a satisfactory exposition of the contents of a work of the kind under consideration, which embraces such a vast fund of interesting materials. We shall, therefore, content ourselves, for the present at least, with a brief detail of the order in which the author has disposed of his subject.

Pathology has been very correctly divided into general and special, the first having for its object the general consideration of the nature of diseases, their causes, and affinities and dissimilarities; the second, the special consideration of the same under the several forms which they present, and the arrangement of them according to their relations, thus embracing the consideration of nosology.

After defining his subject, the author gives a general history of pathology, from the earliest period to the present time, in which are detailed the various revolutions to which it has been exposed. He then goes on to the general consideration of nosology, under which he considers the general relations between health and disease, the subjects of diseased actions, and the division and arrangement of maladies. All diseases are divided into two classes—dynamic and organic; or to use terms which are more familiar, into vital and mechanical. The several diseased actions which fall under these heads are considered in relation with the organs or functions which they implicate, and their characters are fully detailed.

From the consideration of nosology, the author passes to that of symptomatology, or the description of the symptoms of disease, their relations with the diseased conditions which give rise to them, and an appreciation of their nature, in detecting, discriminating, and judging diseases. The symptoms are considered, 1, as they manifest themselves in the alimentary canal; 2, in the process of assimilation; 3, respiration, voice, and speech; 4, the circulation; 5, secretion and excretion; 6, nutrition; 7, the surface of the body; 8, the urinary apparatus; 9, the sexual organs of the male and female; 10, the organs of sense; and 11, in the organs of motion. After these considerations, are detailed the general relations of disease with each other; their course, type, duration, tendency, and termination.

The next subject of investigation is aetiology, or the causes of disease. The author points out the general characters of the predisposing causes, and enumerates, with great accuracy, the principal sources of diseased actions, as well external as internal. The external are derived from several sources, as, for instance, the influence of the sun, of light, electricity, external heat, the atmosphere, the weather and seasons, climate, diet, drink, poisonous substances, contagion and infection, mechanical violence, &c. &c. To these must also be added the internal causes of disease. It is needless, however, to dwell longer upon the subject, as a very inadequate opinion of the merits of a work can be furnished by a mere detail of the subjects which it embraces. To those, therefore, who wish more particular information, we can confidently recommend the work as deserving an attentive examination, and feel assured, that they will be amply remunerated by its perusal for the trouble it may cost them. In short, we will venture the assertion, that Professor Hartmann's Treatise on General Pathology is the ablest that we have seen in any language. In the English, we have no work on the subject, and this defect has so long existed, and so little attention has been paid to this department of study, that we think we are borne out by fact when we hazard the assertion, that there are many students who have passed through the usual term of study, and yet could scarcely enumerate the objects of general pathology. In all other civilized countries this important branch is enjoined upon the student as an indispensable part of his collegiate course, and we accordingly find, that in almost all the languages of Europe, except the English, numerous treatises of high merit have been published upon the subject. May we not hope, then, that this neglect may soon cease to exist in our own country, and that the subject ere long may secure that attention which its importance deserves; and that we shall be no longer exposed to an imputation which reflects so much discredit upon our national medical literature. A work somewhat on the plan of Professor Hartmann's, but drawn up in accordance with the present improved state of the science, would be an invaluable acquisition, and he who shall furnish such a one will deserve well of his country.

E. G.

XV. *Nouvelles Recherches sur l'Endosmose et l'Exosmose, suivies de l'Application Expérimentale de ces Actions Physiques a la Solution du Problème de l'Irritabilité Végétale, et à la Determination de la Cause de l'Ascension des Tiges et de la Descente des Racines.* Par M. Dutrochet, Correspondent de l'Institute, &c. 8vo. pp. 106. Paris, 1828.

This interesting little volume is another proof of the great industry and talent of its gifted author. He says—

> "By these new researches the phenomena of *endosmose* and *exosmose*, which I have discovered, belong to a new order of physical events; and their potent influence on vital actions is placed beyond all doubt."

The most prominent points in the present treatise, are the discovery of liquids which are not penetrant, and of solids which are impenetrable, the development of the fact of difference of velocity with greater accuracy than before, and the attempt to measure and calculate the force of endosmose, and the difference of force exerted by different liquids.

In attempting to estimate the *velocity* of *endosmose*, M. Dutrochet placed, in a graduated endosmometer, solutions of sugar of different degrees of strength, estimated the specific gravity, and observed the number of degrees traversed in a given time. Taking the difference between the strength of the syrup at the beginning and end of each experiment as the mean specific gravity, he concluded that the velocity varies as the excess of the density of the syrup above that of the water. If we say that the difference shall be called 1, and the altitude 1, for the experiment with the weaker solution—a stronger one afforded a difference of 1.76, and an altitude of 1.74—a still stronger, a difference of 2.77, and an altitude of 2.71.

In another series the differences being as 1, 1.59, and 3.19, the altitudes were 1, 1.65, and 3.17, respectively.

In estimating the *force* of *endosmose*, syrups of various densities were placed in an endosmometer with two curves, so that its wide mouth looked downwards, and its narrow one upwards. The ascending stem, made very long, contained a column of mercury, the cessation of the ascension of which limited the height of the column supposed to represent the utmost force of the syrup at the moment of cessation. Syrups, whose densities were 1.085, 1.053, and 1.110, supported columns of 10, 22 10-12, and 45 9-12 inches, respectively. The difference of density compared to clean water, was 0.025, 0.053, 0.110, or, proportionally, as 1, 2.12, and 4.4. Now the columns of mercury were 10, 22 10-12 and 45 9-12, or 1, 2.19, and 4.48.

Or, 1 1
2.12 .... 2.19
4.4 .... 4.48.

At first sight these neat experiments seem conclusive, but on reflection we perceive that two important considerations have been left out of view, viz. the amount of change in the water of the reservoir, and the effect of gravitation on the exosmose. The force necessary to prevent *endosmost* can be known only by ascertaining what altitude of the mercurial column will prevent the saccharine solution from losing specific gravity, an experiment not yet made.

In M. Poisson the electrical theory of our author has found an opponent so able as to shake the confidence even of Dutrochet himself, who still clings, however, to a modification of his original doctrine†. Poisson refers the power to the conjoint influence of capillary and chemical attraction, a position only erroneous because not adequately comprehensive. The membranes undoubtedly act by a power dependent on porousness, while the further transmission may be caused by a similar moleculo-porous power, by electricity, by pressure, chemical action, &c. &c.

A reference to the following table will strike the reader as bearing curiously on the question of cause.

Liquefaction of Gases by Pressure.		*Rate of Penetration by Gases.*		*Quantities of Gases Absorbed by Charcoal.*	
Gases.	Pressure in Atmospheres.	Gases.	Minutes.	Gases.	Volumes.
Cyanogen -	4	Ammonia -	1	Ammonia -	90
Ammonia -	6½	Sulph. Hydrogen	2½	Sulph. Hydrogen	55
Sulph. Hydrogen	17	Cyanogen -	3¼		
Carbonic Acid	42	Carbonic Acid	5½	Nitrous Oxide -	40
Nitrous Oxide -	52*	Nitrous Oxide -	6½	Carbonic Acid	35
		Olefiant - -	28	Olefiant - -	35
		Hydrogen -	37½	Carbonic Oxide	9.42
		Oxygen - -	113	Oxygen - -	9.25
		Carbonic Oxide	160	Nitrogen -	7.5
		Nitrogen -	195†	Hydrogen -	1.75‡

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* Philos Trans. 1823, Faraday.

‡ Saussure, 6th Vol. Ann. of Philos.

† This Journal, present Number, p. 40.

Making the usual allowance for the inaccuracy of difficult experiments, there seems a probability of some relation not yet fully developed between the mechanical condensibility of the gases and their absorption by charcoal and other porous bodies, and between the latter property and the transmissibility through membranes.

Want of space, together with the large allotment already made for this subject in the present number, precludes further notice of the highly interesting little volume before us. It is worthy of the careful perusal of every physician who desires to look beyond the mere routine of our yet too empirical profession.

Last of the practical arts to adopt the Baconian system of improvement, its progress seems at length to yield promise of a brighter era, when founded firmly on the principles of nature and truth, and constituted of materials, drawn from the quarries of experiment and observation, rendered brighter by arrangement, and stronger by combination, the science of medicine will place the physician on that proud summit from which the astronomer and mechanician look down on the feeble systems of former times. It is only thus, by divesting medicine of its empiricism, its mystery, and its hypotheses, that we shall be entitled to claim for our art, its proper rank among sciences, and demand for the educated physician, that respect which he now is doomed to share with nurses and charlatans. J. K. M.

XVI. *Encyclopädisches Wörterbuch der medicinischen Wissenchaften.* Herausgegeben von den Professoren der medicinischen Facultat zu Berlin. C. F. v. Graefe, C. W. Hufeland, H. F. Link, K. A. Rudolphi. Dritter Band. (Antiphathie—Attractio.) Berlin, 1829, und Vierter Band, (Attrahentia—Band,) 1830.

The first and second volumes of this work have been already noticed in preceding numbers of our Journal, on which occasions we expressed our opinion in favourable terms of their contents. Since then, we have received the third and fourth volumes, as announced above, which we shall now proceed to notice. The several anatomical articles contained in the part of the work before us, are written, for the most part, by Professor Schlemm, a very able anatomist of Berlin. We have to regret, however, that the extreme brevity of most of them is calculated to detract from their utility, a fault, indeed, which applies in a less degree to those on the eye, (Augapfel,) but which, even in these, has been unfortunately carried to too great an extent. While upon this subject, we will observe, that the author has demonstrated, contrary to the general opinion, that the cornea is well supplied with nerves.

> "They have their origin from the ciliary nerves, which, behind the ciliary ligament, (ligamentum ciliare,) divide into two orders of filaments, the one superficial, the other deep-seated. The latter, larger and more numerous than the others, are distributed to the iris, (der Blendung;) the superficial, on the other hand, penetrate the sclerotica, on a level with the ciliary ligament, from whence they extend forward to enter the groove of the edge of the cornea which is united with the corresponding border of the sclerotica, and traverse the posterior part of the cornea until they become lost, by their extreme tenuity upon that membrane."

The portion of the work which is taken up with the consideration of diseases of the eye, and the operations proper for their removal, is highly interesting, and the different articles upon those subjects are drawn up with much ability. They are written by some of the most distinguished ophthalmologists of Germany, amongst whom we find the names of Ammon, Benedict, Jäger, of Vienna, Hedemis, Michaelis, Radius, Seifert, &c. The Germans have long taken the lead in this department of surgery, and we can confidently recommend our readers to the several articles contained in these volumes, as a source from which they may derive much useful information, not easily to be obtained elsewhere. The several articles on the most important surgical subjects which are discussed, present much interest, and most of them are written by men of extensive reputation. The same is true of those which embrace the special consideration of the different diseases which fall within the compass of the two volumes. Amongst these, it will be sufficient to designate the articles aphthæ, by Hohnbaum and Heyfelder, aphonia and arthritis, by Sachse, ascites, by Horn, apoplexy and asthma, by Kreysig, and atrophia, by Vogel. The botanical articles are, for the most part, by Professor Link, of Berlin, and are highly creditable to the distinguished author; as are also the several articles on baths and mineral waters, by Professor Osann, as well as his observations on the different articles of the materia medica.

Amongst other subjects contained in the volumes before us, we must not omit to mention the several articles by Professor Hecker, on ancient Greek medical literature. They bear the characteristic marks of the author's known erudition, and furnish an excellent summary of the leading tenets of the *olden time*. In conclusion, it affords us much pleasure to observe, that the favourable notice of the work in question, which we formerly bestowed upon the preceding volumes, has been fully justified by the ability manifested by the editors in the third and fourth volumes. From the known acquirements of the several writers employed in the important undertaking, we feel assured that the succeeding part of the work will be conducted in the same creditable manner as that which is already before the public. E. G.

XVII. *Handbuch der speciellen, medicinischen Pathologie und Therapie, fur akademische Vorlesungen bearbeitet.* Von Johann Nep. Edlen von Raimann, der Heilkunde Doctor. k. k. Med. ersterer Regierungsrathe. Professor der speciellen Therapie, und Medicinischen Klinik, &c. &c. 2 Bände. Wien. 1826.
Manual of Special Medical Pathology and Therapeutics. By J. N. von Raimann, M. D. &c. Third edit. enlarged and improved. 2 vols. Vienna, 1826.

Turning our attention to the clinical school of Vienna, we find, that it has for a long series of years, presented an honourable succession of individuals, as its Professors, whose names are closely identified with medical improvement, and are at the same time, known and respected, wherever the healing art is cultivated as a science. Commencing with the celebrated De Haen, we find the clinical chair filled, successively, by a Stoll, a Frank, a Hildenbrand, and at present, a Raimann; all of whom have done honour to the important trust confided to them, and rendered the advantages of their situation contributive to improvement. In proof of this, it will only be necessary to observe, that this was the field in which were collected the valuable materials of the Ratio Madendi of De Haen, and of the work subsequently published by Stoll under the same name—of the Epitome de Hom. Morb. of J. P. Frank, a work of sterling merit—of the Institutiones Med. Pract. of Hildenbrand, as well as of the Annales Clinic. Vindob. of the same author, and, finally, of the Special Pathology and Therapeutics, of Raimann, which is the work now under notice. To show that Professor Raimann has not neglected to tread in the path so honourably pursued by his predecessors, it will only be necessary to observe, that his work has been so well received in Germany, that it has already, within the space of a few years, passed through three editions.

After considering the classification of diseases adopted by others, the author proposes one of his own, by which they are divided into the seven following classes:—

"1. Fevers, febres, pyrexiæ. 2. Inflammations, phlogoses. 3. Cutaneous eruptions, efflorescentiæ cutaneæ. 4. Cachexies, cachexiæ. 5. Diseases of secretion and excretion, morbi se—et excretorii. 6. Nervous diseases, morbi nervosi, seu neuroses. 7. Diseases of the organization, vitia organizationis."

It will be seen, from this arrangement, that our author is by no means an advocate of the new and enlightened principles of modern pathology, but is rather inclined to adhere to the precepts of the "olden school." Indeed, he states in the preface to his third edition, "that observation at the bed-side of the patient, will convince every unprejudiced mind of the error of that proposition of Broussais, which considers all fevers as nothing more than gastroenterites." He, on the contrary, considers fever to be a general disease; consisting of a kind of conflict between the organs preternaturally excited, and the influence of stimuli. Without pretending to decide a question which has been so much mooted of late, we are willing to confess, for ourselves, that we have long since ceased to believe in the existence of such a disease, as Professor Raimann and others of the school of *essentialists*, have depicted, under the appellation of *Fever*. The conditions, or rather the assemblage of phenomena, which that term has been generally made to represent, we merely consider as constituting so many manifestations of some local suffering, whether this exists within the mucous membrane, the brain, the heart, and arteries, or any other organ. Fever is, therefore, strictly speaking, not a disease of itself, but merely the shadow of irritation, which is "the element or generating cause" of the several phenomena to which the term fever has been applied.

But while we do not agree with Professor Raimann, in his definition of fever, we cheerfully do him the justice to say, that he has pourtrayed the phenomena of disease with great clearness and ability;—that though his pathology is sometimes antiquated and erroneous, his practical precepts are generally good, and such as would be dictated by reason and good sense. The author treats of the different classes of disease in the order in which they have been enumerated, and has every where acquitted himself with credit. In conclusion, we will merely observe, that we can confidently recommend the work to those of our readers who are acquainted with the German language, as a source from which they will derive much useful information. E. G.

XVIII. *Manuel Complet de Médecine Légale, considérée dans ses rapports avec la Legislation Actuelle; ouvrage particulièrement destiné a MM. les Médecins, avocats et jurés.* Par C. SEDILLOT, D. M. P. Paris, 1830. pp. 511. 12mo.

Some publications of considerable merit have recently appeared on the important subject of medical jurisprudence, a science which, whilst it is attracting universal attention in Europe, is scarcely known even by name in this country, and in very few of our medical institutions can it be said to form a part of the studies of the candidates for the doctorate. We, however, do not abandon the hope, that it will not be many years before the full value of this branch of medical learning shall be duly appreciated, and the stigma and disrespect which now but too justly attaches to medical evidence, be wholly removed. The work, whose title we have cited above, is, as it purports to be, a mere manual, giving the leading points connected with subjects on which it treats, without entering into any details or explanations. It is, however, well calculated to afford information to those who do not wish to pursue the study of medical jurisprudence beyond a mere acquaintance with general principles, as well as to serve as a kind of *catalogue raisonnée* to the many important topics embraced by that science. It is divided into two distinct parts: the first solely devoted to the laws which have any bearing on medicine, or which the practitioner of the latter science may be called on to elucidate. The second is wholly medical, and comprehends a brief examination of those details and resources of the art, which enable a physician to decide in the difficult and responsible situation of a witness, and deliver with confidence an opinion on which the property or life of one of his fellow-citizens may depend. As the first part relates to the laws of France alone, we shall pass it over without comment. The first chapter of the second part is devoted to the consideration of marriage. The medical jurist may be called to elucidate several points connected with this institution. The law of England, as laid down by Blackstone, declares that a total divorce may be granted whenever it is proved that corporeal imbecility existed before marriage. In this country, the English law is in force, and the presence of impotence before marriage, is a sufficient cause for dissolving that contract; hence, a medical man should be fully aware of what constitutes this disqualification, and whether it is permanent, or merely temporary. The next subject discussed by the author, is that of pregnancy. In all other animals, the period of utero-gestation is almost invariable; but as regards the human race, much difference exists. The former laws of France allowed ten months; by the code Napoleon the legitimacy of a child born three hundred days after the dissolution of a marriage may be questioned. The English law, on which our own is founded, does not prescribe a precise time. But the whole subject of pregnancy is extremely important, and constantly becomes a cause of judicial inquiry.

As regards delivery, the next point considered, a physician should be able to decide as to what signs determine that this event has taken place, what is the duration of these signs, and whether it is possible that a woman might be delivered unknown to herself.

The subject of viability includes many interesting particulars, and is oftentimes of great importance as respects the descent of property. By the English laws, a husband is entitled to have a life interest in the estate of his wife if he have a child born alive, and the expression of the old law is, if the child should be heard to cry. Some cases where children have been born alive but did not cry, have caused much learned discussion. These cases, however, both in England and this country, are determined by a jury on its particular circumstances, according to the axiom, *idem est non nasci, et non posse vivere.* The sixth, seventh, and eighth chapters treat of injuries to the product of conception, hence including both abortion and infanticide: these important questions we have fully discussed in a former number, and shall therefore pass them over, merely remarking that Dr. Sedillot's observations are worthy of an attentive perusal, and are extremely succinct and concise.

As regards rape, the next subject spoken of, there is little new, with the exception of a mode of determining whether a sexual connexion had really taken place, deduced from stains left on linen, &c. by the semen: this has been examined with attention by Orfila, who is of opinion that they can be distinguished from those of mucus, pus, &c. We have not space to give the results of his experiments, and must therefore refer our readers to the original work.

The next chapter embraces those important and intricate questions connected with mental alienation. This unhappy condition disqualifies by law for the discharge of every civil function, and by universal consent a person in this situation is considered unfit for social intercourse, and is not held responsible for criminal acts. It is therefore a subject of extreme interest, and which frequently calls for judiciary inquiry. We have been somewhat disappointed in this chapter. In fact it is impossible to discuss it satisfactorily in the short space allotted to it by the author. With respect to feigned diseases, the same may be said, nothing more can be done than to give general directions, without the subject is treated at great length.

The third part commences with interments, including an examination of the signs of death; this is very important, and is well treated. It is impossible for us to do more than notice the next topic, that of medico-legal dissection, the directions given are clear, and embrace all the late improvements. Putrefaction, the subject of the next chapter, has become of more importance of late years than formerly; till within a short time, it was thought that no indications could be derived from a body in which this process was fully developed; the late discoveries of Orfila, however, have clearly shown, that as respects the poisons, this decomposition offers no serious obstacle, and in all cases it should never deter a practitioner from doing his duty; with regard to the danger, as is observed by Dr. Smith, much is placed to this account that belongs merely to disgust. The verification of ages is of great interest to a medical jurist, and is capable of elucidating a number of questions, as those of abortion, infanticide, &c. and is treated at some length by the author. Personal identity, which has often become a subject of judicial inquiry, both in this country and Europe, often requires the assistance of medical men to detect the imposture or establish the truth; his deductions must be drawn from characters afforded by age, peculiar marks, &c. characters which can only be properly appreciated by a person conversant with these points. The next chapter is devoted to the consideration of asphyxia, as occurring from whatever cause; this is important from its bearings on many subjects connected with homicide. The rare and extraordinary phenomenon of spontaneous combustion, although discussed by most writers on medical jurisprudence, is of little comparative importance, though cases have occurred where it has become the basis of a criminal prosecution. Lecat gives an instance where a man was executed for the supposed murder of his wife, where it was afterwards proved that her death arose from spontaneous combustion. The same remark may apply to death by inanition, as cases have occurred where trials have taken place for murder committed in this cruel and deliberate manner. The ninth chapter embraces the important subject of wounds, which are very ably discussed at considerable length. It is to be remarked that the word wound has a much more extended signification in legal medicine than in surgery, and comprises not only wounds proper, but also every other kind of accident, as fractures, contusions, &c. With regard to the late experiments of Orfila, Lassaigne, and Barruel, on the modes of recognising blood stains, we are by no means satisfied, especially as respects the test proposed by the latter, namely, the peculiar smell of the blood of each species of animal. The consideration of poisons, which is next entered upon, is replete with interest, and has advanced more rapidly to perfection than any other part of medical jurisprudence. This is by far the best part of the work, and is perhaps the best compend on the subject that has appeared. It is, however, but a compend, and of course is very deficient in many important particulars. The rest of the volume contains models of reports, &c. which have but little interest to an American reader. We can recommend this work in high terms, and should hail with pleasure a manual on the same plan adapted to the laws and ordinances of this country, calculated not only for the medical practitioner, but also for gentlemen of the bar and jurymen. R. E. G.

XIX. *Lectures on the Theory and Practice of Surgery.* By John Abernethy, F. R. S. &c. C. S. Francis, New York, 1830. pp. 190, 8vo.

The reputation which Abernethy has sustained for a series of years, places him in the most elevated rank in his profession, and invests all his opinions with the highest claims to authority. His "Surgical Observations," and all papers emanating from his pen, are so eagerly sought after by his professional brethren, that it has of late opened a source of infamous speculation, in the surreptitious publication of his lectures, which were taken in short hand, and appeared originally in a periodical called the Lancet, whose editor has attempted to defend and justify this base and unprincipled conduct. These lectures were subsequently embodied in two volumes, and have been reprinted in this country.

Nothing can be more reprehensible than this usurpation of an individual's privilege; nor can aught palliate the crime of robbing a teacher of his just prerogative. Such an outrage on private property, cannot indeed be too severely deprecated. Our profession is one of the most honourable, its relations are always supported with respectful courtesy, and its rights regarded with the most punctilious etiquette: when, therefore, persons are so devoid of all propriety as to plunder the rightful possessions of a professor, and publish them for their own benefit, it becomes every member to intercept the bastard publication, and frown down the disgraceful infringement. What incentive can a man have to toil through the drudgery of his immediate, and the dullness of the associate sciences, and exhaust all his days in the acquirement of knowledge, if he is to be cheated out of his rights and emoluments by a mercenary hireling? The merits of an author in the medical science, are hard earned indeed. They are the result of intense study, indefatigable industry, and painful application; and if we countenance such interferences, we at once check the spirit of ambition and enterprise, and impede exertion in the cause of science and of humanity.

Under the above circumstances, and in justice to himself, our author has issued the volume at the head of this article; in which he compresses all his opinions omitted in his former works, and which he calls the *doctrinal part of surgery.* It contains the substance of his evening lectures, which have attracted so much attention in the British metropolis, but which he considers cannot with propriety be incorporated in the regular anatomical course. We regret very much that the press of matter for the present number precludes our entering into any examination of the merits of the work before us, and of presenting some of the views of the author. Like his other writings, it requires no commendation at our hands. It embraces a great variety of subjects, and presents many interesting cases, treated in a very plain, concise, and familiar manner. W. M. F.

XX. *Recherches Anatomiques, Physiologiques et Pathologiques sur le Systeme Veineux.* Par M. G. Breschet. 7 Livraisons. Fol. Paris, 1829.

The object of this work, as its title implies, is to give an anatomical, physiological, and pathological account of the venous system. Mr. Breschet has for many years been known as a successful cultivator of practical anatomy, and as a large contributor to the stock of medical science by various publications. This well-established reputation must be much enhanced by the style and matter of the present undertaking, so far as we can form a judgment from the small portion of the work that has reached us. The figures are of the natural size, and many of them coloured after nature; to say that they are executed with the utmost fidelity, would be only to confirm what may be expected from so experienced and ardent an anatomist.

These plates exhibit in a complete and satisfactory manner, by diversified views, the veins in the spinal canal and about the vertebræ. They also exhibit the venous sinuses which form so interesting a feature in the texture and composition of the vertebræ, and of the flat bones of the cranium. And to this may be added views of the veins of the head and neck, and of those in the interior of the trunk of the body.

The details are of a character of excessive minuteness, and with that exception it does not appear to us that there are many of a novel kind in descriptive anatomy, at the same time full credit should be awarded to Mr. Breschet for the pains he has taken in perfecting this part of the science. The physiological and pathological part will probably illustrate more fully the value of his labours, and perhaps their originality. W. E. H.

XXI. *The influence of Modern Physical Education of Females in producing and confirming Deformity of the Spine.* By E. W. Duffin, Surgeon. C. S. Francis, New York, Monroe and Francis, Boston, 1830. pp. 140, 12mo.

This well written and sensible little volume, is designed to afford a *popular* view of the subject of which it treats. It is a judicious attempt to "reduce to a form intelligible to the general reader, many valuable observations which have been confined to writings strictly professional." In the perusal of this work, we have not observed any thing which can be considered as original, either in theory or practice; although we think the author has been successful in levelling to every capacity the principal points of the important subject of which he treats. He in general agrees with Mr. Shaw, whose sentiments have been already before our readers. In the almost too sweeping condemnation of mechanical treatment, however, he does not derive support from the latest work of that able writer, who, after rejecting instrumental treatment in his earlier writings, was, by more lengthened experience, brought to its decided support. At present, while very little difference of opinion exists as to the causes of lateral deformity, some discrepancy is discoverable among authors, as to the most successful plan of treatment; but on the whole, the weight of authority is inclining to the judicious and cautious use of mechanical auxiliaries; by no means, however, to the exclusion of those remedies which are found by experience to invigorate and consolidate the system. Taking exception, therefore, to the opinions of our author only on that point, we have pleasure in recommending the little volume of Mr. Duffin to all parents, and especially to those who are entrusted with the important task of conducting female education.

J. K. M.

XXII. *Manual of Therapeutics.* By L. MARTINET, D. M. P. translated, with alterations and additions. By ROBERT NORTON, M. D. Extraordinary Member of the Medical Society of Edinburgh. London, 1830. pp. 323, 12mo.

Those who estimate, as highly as we do, the little work on pathology, by M. Martinet, will be pleased to receive from the same hands, a manual of therapeutics. The latter, indeed, must be considered a necessary accompaniment to the former, and will, no doubt, receive the same favour that has been awarded to its predecessor.

The translator, in his preface, observes, "it will be proper, and it may obviate prejudice, on account of its foreign extraction, to mention that this work is not an exact translation." There are two admissions in this sentence we think objectionable. Science belongs to no country. Those who feel the prejudices alluded to, deceive themselves, if they suppose that they are true lovers of science; they are merely coqueting, and had better abandon the pursuit at once. To think such prejudices worthy of notice, to admit that they have any weight, above all, to sacrifice any thing to them, is to encourage and perpetuate what every exertion should be made to destroy.

As to alterations, it may perhaps be admitted, that a translator has the liberty of making them, if it be *distinctly stated in the title page* that such a liberty has been taken, but the judiciousness of such a course, seems to us very questionable, and that it is better in all cases, where changes seem demanded, to make the corrections in the form of notes. We have not compared the translation with the original, so as to be able to say whether the alterations in the present instance are improvements, but the additions made by the translation are numerous, and in many instances judicious.

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

ANATOMY.

1. *On the Structure of the Electric Organ of the Torpedo marmorata and ocellata.* By A. Rudolphi, M. D.—On each side, and in the vicinity of the head and jaw in these animals, is placed a body which is composed of more than a hundred small portions, placed the one upon the other, so as to represent a three, or six-sided prism, or as many voltaic plates. This body is situated immediately beneath the skin, with which it is connected by cellular tissue. When it is examined in its fresh state, or in a specimen which has been preserved in alcohol, each prism is sure to form a kind of tube, supplied with vessels and nerves, and surrounded by a thin membrane, in which is placed, in most cases, a number of very thin, strongly adherent laminæ, having a considerable quantity of an aqueous fluid interposed. Where, however, this body is speedily dried, we cannot distinguish the laminæ with the same facility;—they separate easily from each other, and do not form the tubes above mentioned, since the surrounding cellular tissue is alone visible. These tubes were supposed by Todd to be completely cylindrical, and the angular appearance they sometimes exhibit, he supposed to be only owing to the cellular tissue which surrounded them. This opinion, however, is probably not correct. Gerardi has represented them, for the most part, hexagonal, and as being only in a few instances, four or five-sided. From this organ are given off, on each side, several stout nerves, which are so distributed, that each plate or laminæ seems to be supplied with its appropriate nerve and vessel. In many of the prisms, the nervous filaments anastomose with each other. Each primitive nervous branch sends off filaments to the jaw, previously to entering the electric organ. Of these, the first appertains to the fifth, the second to the tenth pair, or par vagum, according to the enumeration of Cuvier, (*Leçons d'anatomie comparée.*)

"If we consider the electric organ of the torpedo as constituting a kind of galvanic apparatus, we have in the *Gymnotus electricus* a very complicated arrangement of troughs. In this animal we observe, on each side, an upper larger, and a lower smaller organ, each of which commences by a rounded extremity, directly posterior to the head, where they are situated beneath the large muscles of the back, and extend from thence to the tail. The upper one is concave inwards, towards the schirrous processes of the vertebra, convex outwards, presenting an acute border above; is somewhat tapering below, and largest in the middle. It consists of horizontal, transparent laminæ, placed about the third of a line from each other, extending the entire length. Between these are placed a number of perpendicular partitions, closely crowded together, the interstices of which are filled with an aqueous fluid. Beneath this large organ is placed one of inferior magnitude, having divisions still more minute, and only separated from the other, by the intervention of a small quantity of muscular substance. From one extremity of this body to the other, extends the intercostal nerve, which in a specimen now before me, sends off two hundred and forty-four filaments on each side, which are distributed upon each of the laminæ, and by forming a free anastomosis with each other, constitute an extensive and delicate plexus between the organ and the skin. From the third branch of the fifth pair of nerves, is sent off a large twig, which receives another from the par vagum, and after being thus increased in size, passes directly over each intercostal nerve, crossing them at right angles, but forming no connexion with them, and is finally distributed to the muscles of the back. This is the nerve which was mistaken by Hunter for the vagus, and incorrectly delineated by Tahlberg 'par electrium.' "

By means of the peculiar apparatus which has been described, these animals, the torpedo and gymnotus, possess the power of communicating an electric shock, more or less intense, according to the age and condition of the animal. The gymnotus possesses this faculty in the greatest degree, and it is stated by Humboldt, that two of the latter animals can communicate a shock of sufficient power to kill a horse. The shock communicated by the torpedo is much less powerful, and, according to Rudolphi, does not extend beyond the wrist. Todd, however, states, that it is sometimes felt at the elbow and shoulder joints. The electric power of both probably varies much at different times, and is much influenced by accidental circumstances. Professor Rudolphi thinks, that the manner in which the animal is held, exercises some influence upon the intensity of the shock. It seemed to him much stronger when an assistant grasped it on one side, above and below, in the region of the electric organ, while he grasped it on the other.—*Rudolphi's Physiology.*

2. *Bilobate Uterus.*—An instance of this is related in the *Journal Universel* for April, 1830. It was observed in examining the body of a young girl. Externally the uterus presented the appearance of two conical prolongations, from which arose the Fallopian tubes. Internally this organ exhibited two infundibuliform cavities, separated by a complete median septum, extending into the vagina to near its orifice.

3. *Different Species of Double Uterus.*—Professor Mayer, of Bonn, makes the four following varieties of double uterus:—

1st Species. *Uterus Bicameratus.*—This form of double uterus is met with in old women, mostly after the age of eighty. It consists of a transverse division of the cavity of the organ into an anterior and a posterior chamber, the first corresponding to its cervix, the second to its fundus. This condition is generally produced by the adhesion of the isthmus of the organ, by which a separation is formed between its cervix and fundus. It must, therefore, be distinguished from the bilocular uterus, in which it is divided in the direction of its axis.

2d Species. *Uterus Bilocularis.*—In this, and the following species of double uterus, the organ is divided in a longitudinal direction, and for the most part upon the median line. In the bilocular uterus there is a septum or partition, extending from the fundus to the os tincæ, by which the organ is divided into two parallel cavities not terminating, however, in cornua. Examples of this condition have been described by Graual, Eisenmann,[*] and Lauth.[†]

3d Species. *Uterus Bicornis.*—This form of double uterus consists of the prolongation of the two portions of the bilocular uterus into cornua. Examples of it, in grown persons, are not unusual, and have been described by Bauhin, Sylvius, Dionis, Acrél, Canestrini, Leveling, Grauel, Eisenmann, and, in modern times, Teidemann,[‡] Stein,[§] Carus,[‖] Otto,[¶] Lauth, Waller,[**] and Mayer.[††]

[*] Tab. Anat. IV. Uteri duplicis observat rar. List. Argent. 1752.

[†] Repertoire d'Anatomie, Tom. V. Paris.

[‡] Meckel Archives fur Physiologie, Band. V. heft. 1.

[§] Froreip's Notizen, VI. Band.

[‖] Zu Lehre der Schwangerschaft, &c. 2 Abthe.

[¶] Verzeighniss der Anatomischen preparat. wro. 2725-30.

[**] Lancet, 1828.

[††] Journal fur Chirurgie, &c. Bde. 13.

In monsters it is of frequent occurrence, and has been described by Tiedemann, Rœderer, Thamm, Meckel, *father* and son, Mayer, &c. &c. In nearly all the cases of the latter description, other vices of conformation existed in the same subject.

4th Species. *Uterus Bipartitus.*—This variety of double uterus presents the greatest departure of the organ from its normal condition, since not only the different portions of the cavity are separated from each other, but there is at the same time, a complete division of the substance of the organ itself, so that its cavities have no communication externally. Professor Mayer gives two very interesting examples of this condition.—*Journal für Chirurgie und Augenheilkunde, Band XIII. Stuck* 4.

PHYSIOLOGY.

4. *Effects of the Upas tieuté, and Strychnos tieuté on living Animals.*—Numerous experiments have been made on living animals, with the articles in question, by Dr. ALBERS, Professors NEES, EMMERT, and others, from which the following are some of the conclusions:—

1st Experiment.—Three grains of the upas, combined with five drops of an alkaline solution, administered to a dog, did not diminish the action of the heart, or give rise to any bad consequences.

2d Experiment.—Four grains and three-quarters of upas, dissolved in five drops of alcohol, and administered to the same dog, excited violent opisthotonos and death in twenty minutes.

3d Experiment.—The same dose given to another stout dog, occasioned opisthotonos and violent convulsions, but the animal recovered in two hours.

4th Experiment.—Six grains of upas, dissolved in alcohol, administered to the same dog, occasioned death in forty-eight hours, during which time he was afflicted with violent convulsions. The excitability of the muscles was entirely extinct after death.

5th Experiment.—Seven grains of upas, mixed with bread, killed another dog in sixteen minutes, by violent tetanus. The heart could not be excited after death.

6th Experiment.—Fifty grains of the bark of the strychnos tieuté, applied to the wound of a dog, occasioned spasm and paralysis of the whole of the nerves of the spine, and death in two hours twenty-two minutes.

7th Experiment.—The watery extract of the same article, applied in the same manner, excited opisthotonos and death in four minutes. The heart seemed to be completely paralysed.

8th Experiment.—Another dog was killed, under similar circumstances, in seven minutes. The excitability of the muscles was destroyed.

9th Experiment.—Two grains of the gummy extract excited spasms in a poodle, but not death. One grain of the proper extract, however, occasioned opisthotonos and death in twenty minutes.

10th Experiment.—Four drops of the resin of the same substance, instilled into the wound of a small dog, gave rise to opisthotonos and death in forty minutes.

11th Experiment.—The alcoholic extract, used in the same manner, occasioned the death of a small dog in four minutes.

12th Experiment.—One grain of the extract killed a dog in five minutes.

13th Experiment.—The same quantity of the gummy extract produced death in nine minutes.

14th to 17th Experiment.—Sulph. copper, (*blausäur,*) introduced at the same time with the upas, relieved the spasms, but only for a time, as a double dose killed the animal.

18th Experiment.—Tartar emetic introduced into the wound had the same effect.

19th Experiment.—Administered in similar doses to five frogs, it excited violent opisthotonos of from two to three days duration, but not death.

20th Experiment.—Half a grain of upas, used externally, destroyed the life of a dog in an hour and five minutes.

21st Experiment.—The fourth of a grain of the same, applied, externally, excited in a porcupine violent emprosthotonos and death in four hours and forty minutes.—*Journal für Chirurgie und Augenheilkunde*, 13 *Band. Stuck* 3.

5. *Absence of the Anterior Lobes of the Brain.*—In the Report of the labours of the Anatomical Society of Paris, founded by M. Cruveilhier, the reporter, M. Bérard, sen'r. notices a case communicated to the Society by M. Lacroix, in which there was a complete and congenital absence of the anterior lobes of the brain. These lobes were replaced by a transparent serosity which filled the concavity of the frontal bone, and could flow freely into the lateral ventricles which were open at their anterior part. This condition was attended not with a perversion, but an almost complete nullity of the intellectual and moral acts. This is an important fact for physiology, and one to which the results obtained by the removal of parts of the brain in living animals, cannot be compared in point of value. This case also furnishes us other facts of almost equal interest. The os frontis had nearly its usual curvature, notwithstanding the congenital absence of the anterior cerebral lobes, putting at fault the doctrine of the cranioscopists; and the interior of the bone was marked with digital impressions and mamillary eminences, seeming to disprove the opinion that the bone is modelled by the organ it contains. The case also furnishes us a fact unfavourable to the opinion which has been advanced, that the anterior lobe of the brain is the seat of the intellectual phenomena which preside over the organ of speech, and the point of departure of the nervous influence which governs the muscles of the tongue, since this young idiot articulated some words under the influence of certain internal sensations, as for example, hunger. The opinion is further disproved by the following case.—*Rev. Médicale, May*, 1830.

6. *Fungus of the Dura Mater.*—M. Cruveilhier, president of the Anatomical Society of Paris, communicated to the society, a case of fungus of the dura mater, which had caused softening and almost complete destruction of the two anterior cerebral lobes, compressed posteriorly the commissure of the optic nerves, whilst inferiorly it advanced into the nasal fossæ, after having destroyed all trace of the olfactory nerves. The patient nevertheless preserved the faculty of articulating. The compression of the optic nerves caused amaurosis.—*Compte rendu des travaux de la Soc. Anatomique, pendant l'année*, 1829; *par M. Bérard, ainé, Secretaire.*—*Revue Médicale, May* 1830.

7. *Atrophy of one-half of the Encephalon.*—This case was communicated to the Anatomical Society of Paris, by M. Bonet, and shows that a single lobe suffices for the integrity of the intellectual faculties. The *left* lobe was atrophied, reduced to half its original volume, composed of close circonvolutions, small and slightly indurated, and had lost the faculty of controlling the movements of the right side of the body. The left side of the cranium was considerably thickened, and the serosity accumulated in the correspondent lateral ventricle, had filled the void left by the gradual atrophy of the cerebral substance. The left peduncle of the brain had suffered a diminution of volume proportioned to the lessening of the lobe which it supported, a fact which astonishes no one at present, but which Bichat had difficulty in reconciling with his refusal to admit the fibrous structure of the encephalon. The intelligence in this case remained unaffected. In this same subject one of the hemispheres of the cerebellum was atrophied, but what is singular is, that while the *left* lobe of the cerebrum was affected, it was the *right* hemisphere of the cerebrum that was atrophied.—*Ibid.*

8. *Gangrene of one-half of the Encephalon.*—M. LENOIR presented to the Anatomical Society of Paris, a brain, of which one entire lobe of the cerebrum was completely disorganised, diffluent, and of the colour of wine lees; the opposite hemisphere of the cerebellum had suffered the same alteration. The arteries were obstructed by dry, fibrous clots, similar to those met with in the principal arteries of sphacelated limbs. Gangrene of the brain, is, according to M. Lallemand, a very rare disease. Most of the members of the anatomical society considered this case as an instance of softening.—*Ibid.*

9. *Apoplexy of the Spinal Marrow.* By M. MONOD.—A patient died at the Hôtel Dieu, whose right lower extremity had been deprived of motion, though retaining its sensibility, whilst the left leg and thigh were deprived of sensation, but retained their power of motion. The examination of the spinal marrow did not entirely confirm the hopes of those who expected to find the confirmation of the assertions of Messrs. Bell and Majendie. A large clot of blood was found extending in the gray substance of the spinal marrow, and principally to the right, from its inferior part to the height of the cervical region.—*Ibid.*

10. *Use of the Olfactory Nerves.*—The singular influence of the fifth pair of nerves, (trigemini,) upon the functions of the organs of sense, renders it extremely interesting to ascertain whether the branches it distributes to the pituitary membrane can replace those which since Vesalius have been considered as the special nerves of the organ of smell. In the case of fungus of the dura mater mentioned above, (art. 6,) the loss of this sense accompanied the destruction of the olfactory nerves; and this fact, with those published by Oppert, Loder, and Cerutti, seem to preserve to the olfactory nerves the prerogative of which it has been endeavoured to dispossess them in favour of the trifacial.—*Ibid.*

11. *Case of Spinal Arachnites, serving to confirm the views of M. Bellingeri relative to the functions of the Spinal Marrow and Spinal Nerves.* By J. ARRIGI.—Louis Vecchi, aged 24 years, of a vigorous constitution, but who a year previously had experienced an attack of acute gout, was taken in the month of January, 1827, with a violent pain in the muscles of the left side of the neck, unattended by fever. M. Arrigi considered this pain as rheumatic, and in this belief, repeatedly applied leeches, emollient fomentations, and plasters of hemlock and nightshade, which, however, afforded no relief. On the contrary, fever ensued, and the author returning to his first diagnostic, concluded that the pains in the flexor muscles of the neck must be sympathetic of an affection of the spinal marrow or its envelopes. Under this impression, he applied a large number of leeches and cups over the cervical vertebræ, to which he added the extract of cicuta, distilled water of the lauro-cerasus, and the alcoholic extract of nux vomica. Drastics, with local and general baths, were likewise put in requisition, but without any success. Finally, a blister to the nape of the neck was established, but the pains of the patient always continued with severity. The preparations of opium gave only temporary relief to the agonies of the patient. The disease had continued three months, when to the sufferings already mentioned were superadded difficulty in respiration and deglutition, as well as an entire impossibility of performing the motions of mastication. The use of liquid nourishment, now the only means of subsistence, was soon followed by wasting of the body. The face became red and meagre, the eyes black and blue, and the neck permanently inclined towards the left shoulder. Obstinate constipation ensued, and the patient soon expired.

On examination after death, a slight sanguineous effusion was discovered between the dura mater and arachnoid coats extending from the atlas to the last cervical vertebra. The arachnoid itself was dotted and red with a velvet-like appearance in the part corresponding to the anterior and left side of the spinal marrow. The pia mater partook of the same morbid appearances. With the exception of a little more consistency than usual, some red points in the right fasciculus and the nerves proceeding from it, the spinal marrow exhibited no alteration.

Let these morbid appearances be compared with the phenomena observed during life. M. Arrigi asks, if the well marked inflammation of the membranes enveloping the left side of the spinal chord, which inflammation had even penetrated the substance of the chord itself, and the corresponding nervous filaments, did not serve to confirm the opinion of Bellingeri, who considers the lateral fasciculi of the spinal marrow as presiding over the organic functions, since during life, mastication, deglutition, and respiration were sensibly altered? He also thinks, that the inflammation of portions of the pia mater and arachnoid enveloping the anterior branches of the cervical spinal marrow, shows that these fasciculi are solely subservient to the motions of flexion, in proof of which he adduces the spasmodic contraction of the flexor muscles of the neck, a new fact serving still further to confirm the opinions of Bellingeri relative to the affections of the spinal chord.—*Journal des Progrès, Tom. III.* 1830, *from the Annali d'Omodei, March*, 1830.

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12. *Membranous exudation on the Mucous Membrane of the Small Intestines.*—Inflammation of the intestinal mucous membrane is rarely attended with membranous exudation; M. Pailloux has, however, described a case in which the mucous surface of the small intestines was covered with a pseudo-membrane extending uniformly over its surface; the follicles did not appear to have had any part in the production of this membrane, which M. Cruveilhier thinks differed only by its continuity and thickness from the small isolated patches secreted by the intestinal villi in aphthæ.—*Rèvue Med. June*, 1830.

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13. *Hypertrophy and considerable Stricture of the end of the Colon and all the Rectum, resulting from the immoderate use of Drastics.*—A case of this, terminating fatally, was reported to the Anat. Soc. by M. Guyol.—*Ibid.*

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14. *Cerebral Apoplexy.*—The following curious case was communicated to the Anatomical Society of Paris, by M. Cruveilhier.—A man of gay disposition and fond of the table, was attacked with hemiplegia, and suffered convulsions in the opposite side of the body. This state was not, however, attended by loss of intelligence; there was extreme garrulity, and the pulse 130. These symptoms continued for five days, at the end of which time the patient died. The preservation of intelligence, the garrulity, the acceleration of pulse, indicated any thing but apoplexy, nevertheless the post mortem examination, showed one of the thalami nervorum opticorum torn, and a large clot of blood in the corresponding ventricle. We may draw from this case the remark, that sudden hemiplegia is the best sign of apoplexy.—*Compte rendu, par M. Bérard, ainé.—Rev. Médicale, May*, 1830.

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15. *State of the Salivary Glands in Mercurial Salivation.*—M. Cruveilhier states, that in a man who died in consequence of a violent salivation, the salivary glands did not offer any trace of inflammation; the cellular tissue connecting the lobuli of the gland was slightly infiltrated with serum. We presume M. Cruveilhier considers redness essential to inflammation, and denies its existence in this case, upon the same grounds that it has been denied to have been present in the mucous membrane of the intestine in certain cases of cholera. The excessive secretion, we conceive, to be a sufficient evidence of inflammation.

16. *Black colour of the Intestinal Canal.*—MM. Montault and Pinault have each presented an instance to the Anatomical Society of Paris, in which the digestive tube from the cardia to the anus, had a decided black tint, which could not be removed by washing or rubbing.—*Revue Médicale, June,* 1830.

17. *Aphthæ of Infants.*—M. Guyol has exhibited to the Anatomical Society of Paris a case of this disease, occupying the termination of the ileon and the whole large intestine as far as the anus.—*Ibid.*

18. *Fibrous Tumour in the Neurilema of the Fifth Pair of Nerves.*—The following very interesting case from the *Ann. di Méd. Fasc.* for February last, occurred at the Hospital of Pisa, and was communicated to the Medical Society of Florence, by Sig. Del Greco. A man, æt. 25, had for about six months been affected with an obstruction in the left nostril, and swelling of the left cheek; on examination, it was ascertained that a polypus tumour had formed in the left nostril, and this it was decided to extract, after the case had been watched for a few days. M. del Greco employed several kinds of forceps, and though he perfectly succeeded in seizing the tumour, he was unable to remove it. A few months afterwards another attempt was made by M. del Greco and Professor Menici, to extract the polypus growth, but with no better success. During the operation the patient complained of violent pain, and said he felt as if the left cheek and ear were being torn off. A few hours after the second operation, an inflammatory swelling of the left cheek acceded; but it subsided on the following day. In the month of September a third attempt was made by Vacca, but without any effect. Soon after the third operation, symptoms of arachnitis took place, of which the patient died on the tenth day. On a *post mortem* examination, unequivocal traces of inflammation were found in the brain and the membranes; the tumour in the nostril was seated in a branch of the fifth pair of nerves in the following manner: the second branch of the fifth pair, immediately after its passage through the foramen rotundum, was changed into a fibrous mass, divided into five lobes, two of which were of the size of a peach-stone, the three others being smaller, and one of them reaching into the orbit, through the spleno-maxillary fissure. The fibrous tumour was situated in the temporal fossa, between the zygomatic and the great ala of the sphenoid, and the posterior surface of the upper jaw-bone; the spheno-palatine hole had become greatly enlarged, so as to admit the little finger, and through it the tumour had entered the nasal cavity, where it had acquired such a development as to resemble a polypus growth. On dissecting the tumour it was found to originate in the neurilema, and not in the substance of the nerve, which was not at all altered, except by the pressure which the enlargement of the neurilema had necessarily exerted on it.

19. *On the Chemical Solution or Digestion of the Coats of the Stomach after Death.*—Dr. Carswell, an English physician, has recently read to the Royal Academy of Medicine of Paris, an interesting memoir on this subject.

John Hunter, in a paper read before the Royal Society of London, in 1772, was the first to admit the existence of a chemical solution of the stomach by the chemical action of the gastric juice. In almost every stomach, he maintained that the fundus of the stomach is more or less digested; and he sometimes found the action of the gastric juice extended beyond the parietes of that organ, so as to affect the adjacent organs in contact with it, such as the liver, spleen, and diaphragm. He rested his opinion of the cause of these dissolved spots on several cases of violent, sudden death, where he found the stomach perforated and altered like the food it contained, and likewise on certain similar observations he made on fishes.—Adams modified this opinion, in so far as he held that the gastric juice never perforated the stomach, unless death was sudden and complete throughout every part of the body.—Allan Burns returned to the original opinion of Hunter, but relates three cases where the stomach was perforated on its anterior surface, one where the perforation was at the pylorus, and three where the individuals were weak, emaciated, and died after a tedious illness.—Jäger, in two essays published in Hufeland's Journal for 1811 and 1813, relates one observation and two experiments to prove the possibility of the stomach being perforated by the chemical action of the gastric juice, but he adds, that for this effect it is essential that some antecedent disease render the gastric juice preternaturally rich in acetic acid.—The late Professor Chaussier, in the theses of Morin and Laisné, written under his direction, rejects entirely the chemical influence of the gastric juice, and ascribes the solution of the stomach to a morbid action of erosion or ulceration developed on the inner surface of the organ.—M. Cruveilhier, in his writings on the gastritis and enteritis of children, with gelatiniform disorganization of the gastro-intestinal mucous membrane,—M. Louis in his treatise on softening of the mucous membrane of the stomach, with attenuation and destruction of that membrane, and also M. Broussais, agree with Chaussier in denying to the chemical action of the gastric juice any power of producing the various alterations in question, and likewise in ascribing them to a morbid action of an inflammatory nature.—M. Andral is less exclusive than the preceding authors. He does not deny the possibility of perforation of the stomach by the chemical action of the gastric juice, but appeals to new facts in support of that opinion; and believes, that for the production of such perforations, the stomach must have been previously brought into some peculiar morbid state, by which it is predisposed to undergo the process. M. Bernard, in a thesis "on the spontaneous perforations of the stomach observed in persons who die in consequence of violent pain or great surgical operations," ranks acute affections of the mind among the occasional causes of these perforations. Lastly, Dr. John Gairdner of Edinburgh has mentioned several cases of erosion and perforation of the stomach in infants, and appears inclined to adopt John Hunter's view of their nature.

Mr. Carswell concludes the historical part of his subject, by observing, that the more general opinion at the present time is to doubt the possibility of perforation of the stomach being caused after death by the chemical action of the gastric juice; while, in his own opinion, the facts hitherto collected on the subject furnish five arguments to prove this possibility.—1. Spontaneous erosions and perforations are generally observed in the great sac of the stomach, which is exactly the place where the fluids proper to this organ must accumulate in the ordinary position of the body. 2. When the erosion or perforation is attentively examined, it presents traces as if it had extended itself from a central part where the dissolving liquid rested, towards the parts to which the fluid must flow on mechanical principles; and if the solution affects organs adjoining the stomach, these are only the organs in contact with the great sac. 3. In the extension of the erosions and perforations there is no sign of any inflammatory or other morbid process—no redness, no adhesion, no formation of pus, no deposition of lymph; and this is the chief circumstance which establishes a difference between perforations accomplished chemically after death, and those which take place during life by a process unequivocally morbid. 4. Most generally in perforations produced chemically in the dead body, no effusion is perceptible in the abdomen; and it is difficult to conceive how such effusion should not occur if the perforation had taken place during life, more particularly when the individual had violent fits of vomiting. 5. and lastly, these perforations have been observed most remarkably in persons who died suddenly while in a state of good health.

The second part of the paper consists of experiments performed by Mr. Carswell, by which he was enabled to produce erosions and perforations in the lower animals at will. These experiments were made with rabbits. The animals were killed by a blow on the head after they had eaten a meal, and at an interval after it when digestion might be expected to be in full activity. They were then hung up by the hind-legs between five and nine hours. In such circumstances he invariably found the great curvature of the stomach, that is, the most depending part, where the digestive juices consequently accumulate, more or less altered. According to the interval which has elapsed after death, the coats of the stomach were either softened only, or completely perforated; and in the latter case the softening often extended to the adjacent organs, such as the liver, spleen, and diaphragm. The food, too, which was contained in the stomach, was always more altered in the great sac of the organ than any where else. Not only were the adjacent organs softened where they were in contact with the perforation of the stomach, but likewise the same softening was even observed in other organs which simply touched the stomach, and which has received only by imbibition the fluid contained in it. In all the destroyed places the blood contained in the vessels appeared black. Mr. Carswell considers these experiments prove, that the softening, erosion, and perforation of the stomach, referred by authors to diseased actions, are nothing else than chemical solutions by the gastric juice.

On examining the liquid found in the stomach of the animals which were made the subject of experiment, he found that its quantity was always in proportion to the extent of destruction effected, and that its acidity was very strong, to judge from its sour smell and its powerful action on litmus. To this acidity Mr. Carswell ascribes its solvent power. And in fact, on placing in the intestines, bladder, or stomach of dead animals, portions of liquid aliment taken from the stomachs of living animals, he found these alimentary liquids destroyed the organs in which he had inclosed them.

He could not discover that any difference occurred in the production of these appearances by differences in the kind of death. But the position of the body after death was of material influence; for when the animals were suspended by the hind-legs, the destruction of the stomach was much deeper than when they were hung up by the head or laid on the belly, on the back, or on one of the sides. The author conceives the reason to be, that in the first position the blood accumulates in much greater quantity in the abdominal veins, and that, consequently, the secretion of gastric juice goes on after death.

Mr. Carswell concludes his paper with the following general conclusions:— 1. Softening, erosion, and perforation of the stomach frequently occur after death in animals killed during the digestion of a meal. 2. These alterations are owing to the gastric juice in its natural condition. 3. It is not necessary for their production that the gastric juice be preternaturally acid, as Jäger thought, or that the parietes of the stomach be previously brought by a diseased process to an unnatural state of softening, as Dr. Gairdner supposes. 4. Acidity is the essential character of the gastric juice, and the cause of its digestive properties during life, as well as of its solvent power after death. 5. The solvent power, however energetic after death, has no influence on the stomach during life. 6. and lastly, Although certain erosions and perforations are undoubtedly the effect of morbid processes during life, Chaussier, Broussais, and others are mistaken in ascribing all such appearances to disease.—*Ed. Med. and Surg. Journ. from Archives Générales, Feb.* 1830.

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20. *Chronic Arteritis—Consecutive Aneurisms—Rupture of an Aneurism in the Trachea—Passage of a large quantity of Air into the Circulatory System—General Emphysema—Sudden Death.*—This case was observed in the Hôpital de la Pitié, of Paris, by Dr. Alf. Lembert.—A man named Guyon, by occupation a baker, fifty-eight years of age, of a robust constitution, presented himself at the Hôpital de la Pitié, in January 1826, after eighteen months sickness. He represented himself as asthmatic. His case offered the following characteristics:— frequent cough occurring in spells, followed by an abundant expectoration of a frothy, transparent mucus, having a greater resemblance to frothy saliva than to the matter of expectoration; habitual dyspnœa and sometimes orthopnœa; loud and continued bronchic ronchus; respiration distinctly heard in every part of the thorax; occasional slight pulsations between the two clavicles, accompanied with a sense of strangulation.

These symptoms were palliated by the aid of a general bleeding, with some antispasmodics and repose. Guyon left the hospital in April, but returned to it in July in a much worse condition than at the time of his first admission. His face was changed and bloated; he had an intense cephalalgia; the bronchic ronchus could be heard in every part of the thorax; the orthopnœa existed in the greatest violence. The pulse was hard, unequal, but not frequent. Bleeding from the arm produced sensible relief, but occasioned a general prostration. The pulse became very frequent and depressed. This condition continued for twenty days.

On the 6th of August, the ronchus suddenly subsided. On the 9th, a spoonful of florid blood mixed with clots was discharged. The pulse was threadlike and scarcely perceptible. Although the general debility was very considerable, it was not so great as the pulse would indicate. At three o'clock in the morning of the 10th of August, efforts to cough occurred, followed by the expectoration of some spoonfuls of florid blood, and sudden death.

The following appearances were observed on examination of the body eight hours after death.

Circulatory apparatus;—but little serous fluid in the pericardium. The heart weak and flabby, with slight hypertrophy of the left ventricle; a small portion of black coagulated blood in the cavities of the right side, but those of the left completely empty. The arch of the aorta exhibited two aneurismal tumours; the one situated behind the sternum, near the head of the left clavicle, was about the size of an egg. It was partly lodged in a cavity formed in the sternum, which, however, was not perforated. The aneurismal sac inclined to the left, between the primitive carotid and subclavian arteries, its superior portion pressing upon the anterior surface of the trachea, and communicating with the dilated aorta by means of a very large opening. The internal and middle membranes of the aorta did not extend into the aneurismal sac, which externally consisted of condensed cellular tissue and some fragments of the middle membrane, whilst internally it was lined by well organized fibrous laminæ.

A second aneurismal sac existed on the anterior portion of the aorta, above the bifurcation of the trachea. It was small, and communicated with the windpipe immediately above its bifurcation, by an opening of an oblong shape, which passed immediately through one of the cartilages. The aorta of the chest contained a great number of ossifications, and its internal coat was for the most part of a deep red, which colour was much stronger where it surrounded ulcerations that were scattered over about four inches of the length of the aorta, both in the chest and abdomen. These ulcerations were seated in the internal and middle membranes. Their edges were elevated, whilst at bottom they were yellowish. The left branch of the trachea contained clotted blood to the most distant bifurcation, whilst in the right the quantity was not so great as to suspend respiration. The lungs were sound and very voluminous. The stomach was sound, but slightly coloured by sanguineous effusion. The blood which escaped from the divided veins was filled with air. The bladder was distended with air; every part of the body, with the exception of the kidneys, was emphysematous.

It is worthy of observation, that death, which succeeded the rupture of the aneurism, did not appear to be owing to the effusion of blood, which escaped in very small quantity, but rather to the sudden penetration of air into the torrent of circulation. How was it that the hæmorrhagic impulse did not prove more powerful, especially in an artery, than the pressure of the air in respiration? I believe that this may be explained by a reference to the extreme depletion effected by frequent blood-lettings, together with the dilated state of the aorta, and the ossifications which prevented its perfect contraction. Upon the rupture of the artery, and the escape of the volume of blood which it contained, the circulation being impoverished, and the heart enfeebled by softening, a second volume of blood could not be furnished with sufficient rapidity to fill again the arterial cavity into which the air penetrated. Death therefore occurred from the same causes which occasioned the instantaneous destruction of the animals into whom Nysten and Bichat made a sudden injection of atmospheric air. The arteritis seemed to have preceded the ulcerations, which probably gave origin to the aneurisms.—*Journal des Progrès, Tom. III.* 1830.

21. *Hæmatemesis from the Erosion of a Branch of the Coronary Artery of the Stomach.* Case communicated to the Academy by M. Rullier, who had observed it during his service at La Charité.—A man, aged twenty-nine years, by trade a joiner, very much addicted to the use of ardent spirits, five years ago was seized with a profuse vomiting of blood, which returned every eight days precisely at the same hour. In the course of two months he was entirely cured, and subsequently enjoyed good health until the 15th of last April, when he was attacked with warmth and pain at the epigastrium, loss of appetite, and on the 30th experienced a new flow of blood to the quantity of about five or six pints. In spite of diet, applications of sinapisms to the feet and calves of the legs, leeches to the anus, acid and astringent drinks, the vomiting continued to return three or four times a day, and the patient died the 1st of May.

Necropsy.—The stomach contained a sanguinolent fluid, in which there were some clots. About the middle of the small curvature of this organ there was an ulcer three lines in depth, and six or seven in diameter, of a square shape, and surrounded by a thick border. The mucous membrane was soft and diffluent, whilst, on the contrary, the muscular and serous tunics, and sub-mucous cellular texture, were thick and indurated. In the centre of the ulceration was the opening of one of the branches of the coronary artery of the stomach, closed by a clot. The large intestine was filled through its whole extent with black, viscid, dirty coloured blood, similar to the black vomit of yellow fever. All the organs were discoloured, and the heart itself was pale and empty.—*Ibid.*

22. *Case of Rupture of the Stomach, accompanied by Violent Spasm, and arising without any evident cause.* By C. J. Roberts, M. D.—The subject of this case was a boy aged four years. He was suddenly attacked without any known cause, with violent spasms of all the muscles of the right side of the body, from the face to the toes; he died in five hours. On post mortem examination, a rent or tear of considerable size was discovered at the cardiac extremity, which included nearly the whole of that end of the stomach. This organ was carefully slit up, and every part scrutinized to endeavour to discover the presence of either inflammatory action, or any ulceration or attenuation of its coats, but none such were discoverable. The mesenteric glands were rather enlarged and vascular, especially one near the head of the colon, which was nearly as large as a sparrow's egg. The brain was not allowed to be examined.—*Lond. Med. and Phys. Journ. June,* 1830.

MATERIA MEDICA.

23. *Extract of the Mother Waters of the Sulphate of Quinine.*—Dr. Casati states, in the *Annali Universali di Medicina,* for December, 1829, that he has used this preparation in upwards of fifty-six patients, of both sexes, and of different ages, affected with periodical fevers of various types, and that in all eighteen to thirty pills, of two grains each, has sufficed to arrest the disease. No relapses, he says, took place. The first doses caused slight diarrhœa, but which did not continue. M. Sertuerner thinks that the residue of the mother waters of sulphate of quinine possesses deleterious properties in consequence of the colouring matters it contains; Dr. Casati says this is far from being the case.

24. *Sertuerner's Supposed New Alkali, Chinoïdia.*—MM. Henry and De-

LONDRE have sought for this vegeto-alkali, but could not find it, and they believe its non-existence fully proved. The substance mistaken by M. Sertuerner, appears to have been a compound of quinia or cinchonia with a peculiar yellow matter, rendering them uncrystallizable; but this substance being removed, the true vegeto-alkalies appear with their distinctive characters. These experiments were made with the mother waters resulting from the treatment of 200,000lbs. of yellow bark.—*Quarterly Journal of Science, July,* 1830.

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25. *Extract of the Roots of Asparagus.*—M. VAUDIN, pharmaceutist of Laon, has made an extract of the roots of asparagus, by macerating them in cold water, and then evaporating the infusion to the consistence of an extract. The taste of the syrup is too disagreeable to be administered, but it is formed into pills with the powder of the dried root of the same plant. Half a drachm to a drachm, and even three drachms of these pills, have been given during the twenty-four hours, by several physicians, in cases of asthma, hypertrophy of the heart, epistaxis, dyspnœa, and intense cephalalgia, and in every case, M. V. says, with good effects. The stomach in no instance was irritated. M. V. recommends that fresh and well-nourished roots, of from two to three years, white internally, and very fragrant, should be selected; these should be cleansed, cut fine, and then dried.—*Journ. de Chimie Méd. May,* 1830.

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26. *Mode of Preparation of the Syrup of the Shoots of Asparagus.*—Our readers are aware that the asparagus has been recommended by M. Broussais as possessing the property of calming the action of the heart without irritating the stomach; but no formula was given for the preparation of the syrup, the form in which it is administered when the recent plant cannot be obtained. M. A. Chevallier has engaged in researches on the best mode of preparing this syrup, and reported the following to the Society of Medicine and Chemistry of Paris. He took a certain quantity of the young shoots of asparagus, separated the white from the green part, reduced the latter to a pulp in a marble mortar, expressed the juice, let it settle, and decanted it. Two pounds of the decanted juice was put into a dish, and four pounds of white sugar added, and the whole placed in a water bath; this was afterwards heated until the syrup began to boil, the operation was then stopped, the pellicle which formed on the surface of the syrup removed, and the syrup passed through a strainer.

The syrup thus prepared, had the perfect taste of the asparagus, and was not changed after it had been made two months. By trials made upon himself in doses of from one to four ounces, M. C. says that he has shown that the syrup is not a very powerful sedative, but it is an excellent diuretic.

Wishing to know if the syrup prepared from the whole shoot, (both the white and green parts,) would possess the same taste and properties as that made from the green portion solely, M. C. made a syrup of the whole shoot in the manner just described, and he found this syrup possessed the same properties as the other.

It having been said that the syrup of asparagus did not preserve its properties for a very long time, M. C. points out the following mean by which it may be prepared at all times.

Take the green of the asparagus and hang it up to dry in the open air in a garret. Ten parts of this dried asparagus are to be taken and ninety parts of boiling water; the asparagus is to be contused, afterwards placed in a water bath, and boiling water poured below; the bath is then to be shut, and the asparagus left in for twelve hours. The liquid which the asparagus has absorbed, is then to be pressed out, and to ten parts of this liquid twenty parts of white sugar are added; a syrup is made by submitting it at first to a moderate temperature, and gradually increasing it till the syrup begins to boil. It is then taken from the fire and strained. This syrup has the same odour and taste as that prepared with the fresh plant. It is a good diuretic.—*Journal de Chimie Médicale, July,* 1830.

PRACTICE OF MEDICINE.

27. *Gastritis.* By Dr. Elliotson.—A girl, aged seventeen, in Mary's ward, St. Thomas's Hospital, had been ill five weeks, with frequent vomiting. "On examining into the cause of this disturbance in the function of the stomach, the epigastrium was found to be tender, and particularly in the cardiac half; a sensation of heat was felt there within, and up the throat. There were the general signs of an inflammatory state, namely, great heat, thirst, and a quick and rather full pulse; the bowels were undisturbed. Without any medicine, excepting a little castor oil when the bowels were torpid, the case was presently cured by the mere abstraction of blood; a pint was taken from the arm, twenty leeches applied to the epigastrium, and these were repeated about five times. She was presented well upon the 3d of June. If I had attempted to stop this vomiting by saline draughts or opium, I should have failed; and if I had given æther, and other stimulants, which often stop it when there is no inflammation, I should have made bad worse."

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28. *Inflammatory Purging.*—The observations made respecting the preceding case also apply, said Mr. Elliotson, to that of F. W. a woman aged thirty-one, who was admitted into St. Thomas's Hospital, May 16th. The disturbance of function here was lower down, there was diarrhœa, with fæcal but slightly bloody stools, severe griping and tenesmus, which showed the affection to extend to the rectum. I found the whole abdomen very tender and hot. The case was evidently one of inflammation of the mucous membrane of the intestines, of which the purging and griping were the consequence. She had been frequently in hot climates, where she had suffered from dysentery; she had now been ill for only a few days. Twenty leeches were applied to the abdomen, and no medicine given, and a large poultice afterwards applied. These had the effect of at once removing the tenesmus and diarrhœa, the tenderness of the abdomen and the bloodiness of the stools. On account of a little tightness of the chest and cough, a similar number were applied over the sternum a few days after, and she took ten grains of extractum conii three times a day; she was confined to milk diet entirely, as the last patient was to barley-water. She was presented well upon the 3d of June. Had I not ascertained the inflammatory nature of her diarrhœa, but exhibited opiates and astringents, I might, indeed, have locked up the intestines for a time, but have induced, probably, active inflammation of a dangerous kind; and if serious mischief had not resulted, at any rate the diarrhœa would have returned with redoubled violence.

The two preceding cases, for which we are indebted to a late London Journal, are from a clinical lecture of Dr. Elliotson's, delivered at St. Thomas's Hospital, June 7th. However sanguine we may be of the ultimate triumph of physiological medicine, we did not expect to find its principles inculcated, and the modes of practice it leads to, adopted, at present, in a London Hospital. It is not long since cases of the first description were treated with tincture of cloves, croton oil, &c. &c. and cases like the second with rhubarb, prepared chalk, tincture of kino, &c.; such a treatment is even pursued at the present day by some practitioners. That patients will *sometimes* recover under such treatment, no one who has had a very extensive experience, and is aware of the resources of nature, can deny, but that the results in a large majority of cases are of the most disastrous nature, must be confessed. Physicians deceive themselves in supposing that after dosing their patient with a farrago of the most active articles in the materia medica, with a fatal result, that they can quiet their consciences, or at leat satisfy their patient's friends, that they have exhausted the resources of the art. A physician lately remarked to a lady, on the death of her child under his care, "really, madam, it is surprising that that child should die, I have given it medicine enough to kill a horse!" When a second child was taken sick, the lady sent for another medical adviser, and, on relating to him this anecdote, remarked, with great good sense, "if the medicine was sufficient to kill a horse, it is no wonder it killed my poor child."

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29. *Rabies Epidemic at Stockholm in* 1824. By Dr. Ekstrom, Surgeon to the King of Sweden, and to the Royal Hospital, Stockholm.—In the spring of 1824, hydrophobia was epidemic in Stockholm and the surrounding parts of the country. A considerable number of rabid dogs, some cats, and even some horses, were treated at the Veterinary College. One hundred and six persons presented themselves at the Royal Hospital, with wounds received from the bites of animals which were rabid, or supposed to be so. The danger of such injury having been made known to the public by several advertisements from the medical authorities, almost all who were bitten applied as soon afterwards as possible. The treatment adopted consisted in making deep incisions in the wound and surrounding parts, in different directions; these were then diligently washed for several minutes either with water, or with diluted muriatic acid, or a solution of muriate of lime; the wound being thoroughly cleansed, was then dried, and any remaining blood removed, after which a hot iron, or potassa fusa, or in a few instances strong muriatic acid, was applied, always taking care to touch every point of the bottom of the wound and incisions, so that a large and deep eschar was formed.

For the purpose just mentioned, I always used small cauterizing irons, in order to be able to apply them accurately to the wound itself, because with a larger iron a merely superficial eschar is produced, which covers over and conceals the wound, while the bottom of it remains untouched. For the same reason, I prefer the caustic in powder, or in a deliquescent state. The muriatic acid does not produce so deep an eschar, and is therefore less trustworthy. After this primary treatment, warm poultices were applied, to promote suppuration and the separation of the eschar. The suppurating surface which followed was kept open for several weeks, or even for months, by means of the unguent cantharidis, &c. The patients were all ordered to show themselves at the hospital every second day, and were thus carefully watched, as well in respect to the state of the wounds, as of their general health.

The efficacy of the treatment was strongly illustrated in the case of a young man, who was bitten at the same time with ten other persons by a rabid dog: they immediately applied for assistance, and all escaped; but he, regarding the wound as too trifling, did not pay any attention to it, and at the end of three weeks he was seized with hydrophobia, on which he was brought to the hospital. I cut out the cicatrix of the primary wound, (which, however, was so small that it could scarcely be found,) and applied the actual cautery to the part. Large quantities of blood were taken from him, and the mercurial ointment rubbed in nearly over the whole body. Injections of water, recommended by Magendie, were also employed; but nothing diminished the violence of the symptoms, and he died about seventy hours after the development of the disease. He bit the nurse in the hand when wiping his mouth: the hot iron was applied immediately after scarifying the part, and the woman suffered no further inconvenience. When I made the injections of water into the veins, he spit upon my face, and even into my eyes. The same thing happened to the house-surgeon, when bleeding him. We only washed the parts with tepid water, and syringed our eyes with the same fluid.

Of the entire number above mentioned as having applied at the Royal Hospital on being bitten, one only afterwards suffered from the disease. With respect to him, the circumstances were as follow:—A man, about forty years of age was bitten by a rabid dog, along with several other persons, all of whom immediately applied for assistance: being an artist in a porcelain manufactory out of the town, and unwilling to lose his day's work, he deferred his visit to the hospital till next morning. He had a wound in the hand, which was rather superficial; and one in the leg, just above the ankle, and passing deep behind the tendo-achilles: both were scarified, and filled with caustic potass. The man suffered much from his leg, and I wished him to stay in the hospital; but, in fact, partly from being at a distance, and partly from unwillingness to lose his occupation, he came seldom, neglected our orders, and allowed the wound to heal up quickly, instead of keeping it open. About a year and a half after this time he was fishing on a Sunday morning, and as he stood in the water, close on the beach, with his feet bare, he suddenly cried out to his companions, "I can bear this no longer." He then ran home as fast as he could, and complained to his wife, with horror, of the effect of the sea upon him, which, he said, brought on dreadful suffering, particularly an oppression in the chest. His breathing was rapid, he spoke in a hurried manner, was agitated and even wept, exclaiming that he should die. At this time he could drink, though not without difficulty, but was greatly disturbed by the least breath of air—even by that caused by opening the door. Next day he was delirious, when his wife applied to the physician of the manufactory, who, suspecting hydrophobia, requested me to see the patient with him. I found the cicatrix on the leg inflamed, the absorbents of the limb and the glands in the groin somewhat swollen and tender. When I entered the room he recognised me, and, reminding me of the dog, cried out, "My God! now I have found it." The cicatrix was cut out by a very deep incision, and after allowing the wound to bleed freely the hot iron was applied. Mercury and other remedies were employed, but he died in three days, under a paroxysm of convulsions. He could drink to the last, and never made any attempt to bite, but was constantly spitting. The only remarkable appearance found on inspecting the body, was the inflammation of the absorbents already mentioned, and a considerable effusion of serum within the head.

The sum of my experience relating to hydrophobia is, that the local primary treatment calculated to eliminate or destroy the poison as soon as possible, and before its absorption, is the principal and probably the only thing to be relied upon; but as it is impossible to determine, *à priori*, how long after the accident the absorption may take place, the method above described would be applicable at any period after the receipt of the injury—but the case just detailed, shows the danger of even a short delay. I am satisfied that in this case had there been no local treatment employed, the disease would have broken out in the space of a few weeks, and that what was done, though not sufficiently energetic to destroy the poison altogether, yet postponed its effects. The eschar and effusion, with thickening of the cellular membrane which were produced by the cautery, prevented for some time the absorption of the small portion of poison still sticking within the limits of the cicatrix; but as these effects became diminished, and the parts resumed their original texture, the natural actions were renewed, absorption took place, and the disease then broke out.

It may perhaps be said, that of those treated by me, but few were bitten by dogs really rabid. I know, however, with certainty, that on a very moderate computation half were so—the dogs having been secured for the purpose of determining this point. In further support of the efficacy of the plan of treatment recommended, I may refer to the following case. A gentleman who was sporting one morning, observed that one of his dogs would not pursue the hare, but attacked and bit another dog. In order to secure him, the gentleman proceeded to put a collar on the assailant, when the animal bit him in the hand. He returned to town, and came to me about six hours after the accident, when I employed my usual treatment, as above described. The dog that had wounded him died hydrophobic in two days; the other dog, bitten by the first, took the disease in three weeks, and also died. The gentleman, however, has suffered nothing, though he is a very nervous person and had the greatest apprehension of danger, and thus remained in a state of mind the best calculated to increase the disposition to the disease. During this summer, one soldier died of hydrophobia in the Military Hospital of Stockholm; one artillery man died in the town, and a labourer in a village in the neighbourhood. Of these, which were the only deaths, none of the individuals had submitted to the primary local treatment which it has been my object to recommend.—*Lond. Med. Gaz. July*, 1830.

30. *Dulcamara in Cutaneous Diseases.*—Mr. Gardner, in a paper in the *London Medical and Physical Journal* for May last, confidently asserts, that, if properly administered, the *Solanum dulcamara* is a most effectual remedy in skin diseases, especially those attended with irritation, pustules, vesicles, scales, &c. The diseases in which Mr. G. says he has employed it with uniform success, are psoriasis, in several varieties, impetigo, eczema, and porrigo, as well as in lepra and ichthyosis. In a great number of obstinate cases of porrigo it has succeeded without any local application. "To ensure success from the use of dulcamara, it is necessary that it should be collected at a proper time, and carefully dried; it should, when dry, be capable of yielding a powder of a bright green colour, and, by watery infusion, an extract possessing strongly the peculiar flavour and odour of the fresh plant. With these precautions, it may be given in the forms of powder, decoction, infusion, pills, or syrup. Perhaps it is best always to use the extract, which contains concentrated the peculiar properties of the plant; but it must always be began in small doses, and gradually increased until sickness, vertigo, and purging are produced. For some constitutions are peculiarly susceptible to its influence, whilst others resist it until very large doses have been given. In no case have I known any benefit to the skin disease from its use, unless the symptoms of its influence on the system were produced. It is necessary, of course, when these symptoms occur, to proceed with caution, to properly diminish the dose, or lengthen the intervals of exhibiting it, in the same manner, and for the same reasons as we should do with digitalis, or any other powerful remedy.

"I may, in conclusion, remark, that several cases have occurred to me where the patient has taken, by the advice of physicians, the decoction of dulcamara of the Pharmacopœia, prepared by some celebrated chemists, for a long period, without any effect. On inspecting the decoction, it has been a pale, dirty green, thin fluid, without much odour or taste. This slovenly mode of trying any remedy, may well lead to its disuse. The decoction ought to be of a dark bottle-green colour, depositing a copious sediment as it cools, which should be shaken into the fluid, and ought, at any rate, to be given until some effect is manifested."

31. *Asthma treated with the Tincture of the Lobelia inflata.*—Two cases of asthma have been successfully treated with the *Lobelia inflata*, by J. Andrew, M. D. He gave a drachm of the tincture with half an ounce of water. In decidedly asthmatic patients, Dr. A. says that he has no doubt that this medicine will give immediate relief, but he cautions "those who are unacquainted with it, never to use it where there is any organic affection of the heart or large arteries, as its employment in such cases might be attended with fatal results. —*Glasgow Medical Journal, May*, 1830.

32. *Bronchocele cured by Iodine.*—Henry J. Raines, Esq. relates in the *London Medical and Physical Journal* for June last, a case of bronchocele, occupying the whole of the anterior and lateral parts of the neck; the superior portion ascending as high as, and nearly level with the chin, and the inferior resting on the upper part of the sternum. The respiration was considerably affected. The patient was a female, aged thirty-seven, the mother of five children, and her disease had commenced ten years before she was visited by Mr. Raines. The tincture was prescribed in the dose of ten drops, afterwards increased to fifteen and twenty drops, three times daily, a calomel purge twice a week, and frictions with the iodine ointment to the neck. In three months the tumour was nearly absorbed.

33. *Modes of treating Intermittent Fever pursued at the various Hospitals of Paris.*—There is in the *Journal Complementaire*, for February last, a very interesting paper on this subject, and as we have not received that Journal, we take from our cotemporary, the *Medico-Chirurgical Review*, for July, the following analysis of it.

Hôpital Beaujon.—During the year 1827, one hundred and eighteen patients affected with intermittent fever had been admitted into this hospital; their ordinary time of remaining in the institution is thirteen days. Of these 118 patients 96 were males, and 22 females, but as the beds for the former are one-sixth more numerous than those for the latter, the calculation will be 82 men to 20 women, or as 4 to 1. No doubt the causes of this great disparity between the liability of the sexes to ague, must be looked for in their different habits of life, as well as in the circumstances of profession and exposure. Forty-two of the individuals were above thirty years of age, seventy-six below it. Twelve cases occurred in Winter, thirty-seven in Spring, forty-two in Summer, and twenty-seven in Autumn. The quartans predominated in Winter, the tertians in Spring and Autumn, and the quotidians in the Summer. The majority of the patients from the country were from Boulogne, Point-du-Jour, or other such damp localities, whilst the Parisians were mostly inhabitants of the dark narrow streets in the vicinity of the Seine, or persons with sedentary and unwholesome occupations

The writer of the foreign article on which we are now employed, who appears to be an offset from the "physiological" trunk in the Val-de-Grace, in other words a disciple of Broussais, lays down the following rules of treatment, founded on those which guide that celebrated systematist. 1mo. The first means should be directed against the irritation in the system, the removal of which generally removes the fever also: our author has seen *many* of these affections, intermittents, yield to antiphlogistics only at the Val-de-Grace: 2ndo. If symptoms of gastric or intestinal phlegmasia be present we should abstain from administering febrifuges in the first instance; 3tio. When the irritation is confined to the mucous membrane of the primæ viæ,* it is proper to administer them by the colon, and vice versâ: 4to. The febrifuges, especially quinine and its preparations, being viewed as irritants, should only be employed in small doses. Making some allowances for modes of expression and national usages, as in the *lavement* proposition, the above rules are very good ones and deserving of more consideration than they often seem to receive in practice.

In the one hundred and eighteen cases that occurred at the Hospital during 1827, M. Renauldin, the physician in charge, pursued the following method with universal success. After the first paroxysm six grains of the sulphate of quinine in three pills were given until two periods had passed over without a fit; the same medicine was then continued for eight days, the dose being gradually diminished, and a pill being given from hour to hour in such a manner that the last was taken two hours before the expected paroxysm. The diet was good until the cessation of the fever.

Hôtel Dieu.—M. Husson, one of the physicians to this establishment, gives the sulphate of quinine internally unless there be evident counter-indications. He begins with doses of one or two grains, which he augments progressively and indefinitely, according to the obstinacy of the complaint. A severe tertian was arrested in a girl of sixteen by a single grain dose of the sulphate.

M. Recamier usually begins with four or six grains of the quinine, and increases the dose daily, if necessary, to twelve, fifteen, or eighteen grains in the twenty-four hours. Such is the treatment of *ordinary* cases by the other physicians of the Hôtel Dieu, as well as by those of the Charité and other institutions of Paris.

M. Bally, who believes in the *essentiality* of fevers, in the most ancient and extended sense of the term, maintains that the sulphate of quinine is only an irritant when given in small and repeated doses. Accordingly he prescribes it in very large ones, beginning with thirty-six, forty, or even sixty grains in the twenty-four hours. M. Bally asserts, that this practice not only arrests fevers promptly but prevents the occurrence of the organic alterations that are too often left behind. Like those who pursue the very opposite plan, M. Bally can appeal to a number of successful cases. This physician has been recently experimenting on the *salicine*, or principle obtained from the bark of the willow. In the case of a young pregnant woman, who attributed her complaint to terror, and suffered from *two fits* during the day, the fever was allowed to run on for seven days, and eighteen grains of the salicine in three doses were then prescribed. The remedy was continued for the two succeeding days, when its use was discontinued on account of some irritation which it seemed to produce in the throat; the fever was perfectly arrested. The reporter adds that several other equally conclusive cases have occurred in favour of this medicine.

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* By primæ viæ, the *upper* portions of the intestinal tube are obviously alluded to.

The ligature of the limbs has been tried several times at the Hôtel Dieu, and with occasional success, but not sufficient to inspire any extraordinary opinion of its powers in the minds of the experimenters.

La Charité.—Experiments have been made at this hospital on the febrifuge powers of the misletoe in powder, which has lately been represented as more efficient than even the sulphate of quinine. M. Chomel has employed it on five or six patients during the course of the last Autumn, but without success. The following facts deserve to be recorded and remembered. It is not because the virtues of a miserable drug like the misletoe, if drug it can be called, are put in question, but because the same circumstances step in to disturb our reasonings and vitiate our conclusions with respect to more potent and efficacious articles of the materia medica. The fact then to which we would draw the attention of our readers is this—M. Chomel being desirous of testing the powers of the misletoe, selected, last Autumn, *twenty-two* patients labouring under intermittent fever. Before exhibiting the medicine he waited for the appearance of some paroxysms, and the consequence was, that in *seven* the fever ceased spontaneously, and a cure ensued without the aid of any medicinal remedy whatever. In *four* other patients the paroxysms gradually and spontaneously diminished, and required a very small dose of the quinine for their complete dispersion. Of the eleven remaining individuals, *eight* displayed symptoms of intermittent phlegmasia, and were cured by antiphlogistics; and the final three, who alone became subjects for the misletoe, experienced no benefit from its use but were cured by the quinine. This does not prove much in favour of the misletoe.

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34. *On the Dangers of Abstinence and Insufficient Alimentation.*—M. PIORRY has presented to the Royal Academy of Medicine, a Memoir on this subject; the following are his notions in relation thereto, as given in the *Archives Générales*, for April last. M. P. first inquires what are the effects of absolute abstinence and insufficient alimentation on the blood, the muscles, the heart, the lungs, the digestive tube and its appendages, and the nervous system. He asserts, that rigorous and prolonged abstinence diminishes the quantity of blood and its proportion of fibrin, the volume and consistence of the muscles, those of the heart itself; the tissues lose their colour, the veins sink, the heart and arteries beat with less force, and all the anatomical and physiological changes take place which follow loss of blood. From these facts, M. Piorry concludes, that evil effects are often produced by too rigid diet in diseases; and he considers various diseases in this point of view.

According to M. P. a restricted diet is injurious in hypertrophy of the heart, notwithstanding what Valsalva has said, especially when there is a contraction of the orifices of this organ; hypertrophy is, in fact, in these cases, a necessary power to overcome the resistance resulting from these contractions: general bleedings must then be had recourse to, which mechanically facilitate the circulation, rather than to local bleedings, and especially to diet, which diminishes slowly the mass of the blood, and besides have the inconvenience of impoverishing this fluid. This is especially applicable, says M. Piorry, in hypertrophy in which the heart is soft and acts feebly; here we must strictly guard against severe diet, which is useful in hypertrophies in which the heart is hard and beats with energy. He denies also the advantages of restricted diet in aneurisms of the heart and large vessels, because the blood is deprived of its plasticity, and the retraction of the abdomen, and of the viscera contained in this cavity, makes the blood flow in greater quantity into the cavities of the heart and large vessels. Abstinence and diet, he says, are useful in recent acute pneumonia, but hurtful in the pneumonia of old persons, resulting from a mechanical obstacle to the circulation; he has cured at La Salpétrière more cases of this kind by tonic regimen, than by diet and diluents. M. P. says also, that in phthisis pulmonalis diet does not prevent either the softening of the crude tubercles, or the absorption of the pus from those that are soft and suppurated; from which he concludes, that it unnecessarily adds to the exhaustion of the patient: he thinks, therefore, that a diet essentially animal, would be often proper, arguing from the fact, that tubercles never occur in carnivorous animals, and, on the contrary, are very frequent in herbivorous. He asserts, that if diet is indispensable in acute gastritis and enteritis, it is injurious in the latter stages of these diseases, even when there is still loss of appetite, loathing, furred tongue, pain, heat of the epigastrium, &c. Assuming that the gastric juices are acid, and can corrode the parietes even of this organ, he thinks that the stomach would be less irritated by food, than by its own juices; he believes that many cases of softening of the mucous membrane of the stomach in diseases of long continuance, are often the effects of these acid juices, and prolonged abstinence. He finally says, that this often causes gastritis, as we see it in individuals who die of hunger. In diseases of the brain and its membranes, he says, that in certain persons abstinence produces head-ache; in infants, convulsions; and in most cases delirium.

Verily this is a consoling system for the gourmand. Were honest Sancho now ruling his Island of Barataria, Dr. Piorry might confidently reckon upon being installed into the office of court physician, to the discomforture of Dr. Snatchaway.

35. *Malignant Intermittent Fever Successfully Treated by the Endermic Method.*—In the *Annali Universali di Medicina*, for January, 1830, two cases of pernicious intermittent, one, a man aged thirty-six, the other, a girl aged ten years, are related by Dr. Broglia del Persica, successfully treated by the sulphate of quinine applied according to the endermic method.

36. *Paralysis of the Tongue.*—The subject of this case was a woman, aged thirty-two years, who had had the preceding year a very violent cerebral fever, subsequent to which, she was affected, during four months, with a great difficulty of speaking, which, however, after a time left her. She suffered, however, a relapse of this difficulty, and nine days afterwards was admitted into the clinical wards of La Charité under the care of M. Cayol. She pronounced words with so much difficulty, that she could not make herself understood. Nevertheless, she had no difficulty in thrusting her tongue out of her mouth, and in performing all the movements necessary for mastication and deglutition. The intellectual faculties were in a healthy condition, as were all the other functions. She had only a severe headache. M. Cayol ordered twenty leeches to the base of the cranium; repeated purgations with Seidlitz powders; and finally, a seton to the nucha. By these measures a complete cure was effected in three weeks.—*Revue Médicale, April,* 1830.

37. *Treatment of Chorea.*—Baron Dupuytren has for a long period employed with success, as a principal remedy in the treatment of chorea, cold baths and

cold affusions. He administers them in the following manner:—The patient is held by two men, one of whom takes him by the arms, the other by the legs; they then dip his body quickly in a bathing-tub of cold water. This immersion, which lasts only an instant, ought to be repeated five or six times in a quarter of an hour. It produces in the patient a very violent muscular spasm, particularly in the pectoral region, insomuch that he thinks himself about to suffocate, but habit soon renders this sensation less insupportable. The operation being over, the patient is wiped perfectly dry, and made to take pretty active exercise for half an hour or an hour. M. Dupuytren remarks, that after following this treatment a few days, cases of chorea of several years standing have become better, and sometimes in the course of a fortnight or month, got completely well. For the application of cold affusions, the patient is seated in an arm chair or bathing-tub, when six or seven jets of cold water are successively dashed upon his head, and other parts of his body, after which the same attentions and exercise, as before mentioned, are to be adopted. The treatment by affusions is especially employed for females.

The Journal Hebdomadaire, from which the note is borrowed, has published three cases cured by these means; one of a young man, aged sixteen years, who had been affected for several years, and whose four limbs were very much affected, cured in five weeks; another, of a girl, aged seventeen years, affected chiefly on one side of the body, cured in three weeks; the third, a little girl aged thirteen years, affected for three months throughout the body; cured in twelve days.—*Journal des Progrès, Tom. III.* 1830.

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38. *Membranous Tracheal Angina.*—A lace-maker, twenty-six years of age, after loss of appetite for some days, was affected with febrile uneasiness and slight chilliness. Soon afterwards a hard and troublesome cough, with hoarseness, pain at the anterior part of the neck, and difficulty of deglutition, supervened. When he entered the clinical wards of La Charité, the fifteenth day of the disease, all these symptoms continued, except the fever, which had ceased several days before. The cough had a very marked croupal character. Respiration laborious and hissing, especially during inspiration: expectoration aqueous, abundant, containing many small fragments of membraniform concretions of a grayish-white, and of the consistence of the boiled white of an egg; pulse 86; heat of skin natural; no derangement of the digestive functions. On examining the fauces, many patches of lymph, of the size of a finger nail, were observed near the base of the uvula and velum palati. Ordered twelve leeches to the sides of the larynx; and the same day emetic potion with two grains of tartar emetic; tisan of saponaria. The vomiting was abundant, and produced the expectoration of numerous shreds of dense, membraniform concretions, one of which was about three inches long, tubular and bifurcated at its extremity, perfectly represented one of the first divisions of the bronchia.

The next day, July 8th, new plates of coagulating lymph were observed on the tonsils, the velum palati, and the posterior portion of the larynx. The aphonia was complete: the chest on percussion resounded naturally every where; but the respiration was feeble, and made a noise very analogous to that of bronchic respiration; besides, at intervals a little of the vibrating râle was heard. Ordered a concentrated solution of sulphate of alumine to be applied to the shreds of lymph in the throat; potion with a strong decoction of polygala; two grains of calomel every two hours.

9th. The membraniform concretions of the pharynx were in part detached, leaving exposed red sensitive spots deprived of epithelium. Respiration freer; patient feels better; constipation. Ordered three glasses of Seidlitz water; frictions on the anterior part of the neck, with half a drachm of mercurial ointment; other remedies to be continued.

The following days the patient continued to improve. On the 12th scarcely any more of the plates of lymph could be seen in the throat, and the expectorated matter contained scarcely any membranous shreds. On the 13th the calomel and mercurial frictions were discontinued, on account of the swelling of the gums and the commencement of salivation. The treatment is completed by mild purgatives and demulcent gargles. The cure was complete by the 25th, and the patient left the hospital the 1st of August.

Dr. Bretonneau, who was at the time in Paris, was invited by Dr. Cayol to see this patient, and after a careful examination, he was convinced of the identity of the disease with that which he had seen reign epidemically at Tours, and which he has described under the name of *Diphtherite.* He remarked, however, that the swelling of the lymphatic ganglions of the neck, and the access of dyspnœa, which he had constantly observed in the epidemic of Tours, did not exist in this patient; nevertheless, he believed the diseases identical, and prognosticated a fatal termination in this case.

On analyzing all the circumstances of the invasion and the progress of the disease, M. Cayol viewed it as a primitive fever, of which the membraniform exudation of the bronchia was a consequence, a result, a crisis. Every local affection, says he, which is the consequence of a fever, may be considered as a crisis. When the development of this local affection coincides with the cessation of the fever which has produced it, the crisis may be said to be complete, that is, good or salutary, at least when it is not badly situated; and in this last case it produces some accidents which result solely from the part affected: it becomes then the cause or the origin of a new disease. When, on the contrary, the primitive fever does not cease after the development of the local affection, it may be considered as an incomplete or insufficient crisis: so long as the primitive fever has not ceased, the disease is not *judged.*

These general results constitute the foundation of the doctrine of crises. Thus, then, in the case under consideration, and according to the reasoning of M. Cayol, the patient was *judged,* since the fever had ceased. There was then only a local affection, troublesome certainly, because it was in a bad situation, but nevertheless much less troublesome than if the general disposition of the system which had produced it still continued.

From these considerations, M. Cayol reposed much hope upon the treatment which he had many times used successfully in similar cases. This treatment is founded solely upon two principal indications—1st, to provoke the expulsion of the false membrane, which obstructed the bronchia, and formed a mechanical obstacle to respiration; 2d, to prevent the re-formation of this membranous exudation, by modifying the secretory organ which produced it. The means employed to fulfil the first indication was the tartar emetic, and for the second, the mercurial frictions and the solution of alum. The success answered the expectations of M. Cayol.

We are indebted for the preceding case and observations to the reports of cases treated in La Charité by M. Cayol, contained in the *Revue Médicale,* for April last. The case is an extremely interesting one. Lymphatic exudation in inflammation of the trachea in adults is rare, and when it occurs to the extent it did in the instance just related, recovery seldom takes place.

Neither the indications of treatment, however, as pointed out by Professor Cayol, nor the measures by which they are to be accomplished, have any novelty; it is interesting, however, to find that these measures sometimes effect a cure. The pathological views of M. Cayol possess as little novelty as his therapeutics—they are essentially the notions of the Hippocratic school revived. We have, nevertheless, thought it would be interesting to present them to our readers, as their advocate is one of the most eminent professors of Paris, and one who is constantly brought forward by the opponents of physiological medicine as the rival of M. Broussais.

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39. *Treatment of Gonorrhœa.*—The *Journal Général,* of February last, contains an interesting article by M. Guerin, de Mamers, on the treatment of gonorrhœa by antiphlogistics and balsam of copaiva. M. G. reports many cases successfully treated by these means. He employed the copaiva alone, or in the

following combinations. 1st. ℞. Bals. copaib. sirup. diacod. āā. ℥j.; Pulv. gum. arabic. ʒiij.; Aq. cannel. ℥iss.; Infus. piper. cubeb. ʒss.; Carmin. ʒiss.; Ol. anis. gr. iij.—M. Or, 2d. ℞. Bals. copaib. ℥j.; Magnes. cal. ʒj.; Terr. japon. ℥ss.; Piper. cubeb. ℥iss.; Ext. opii. gr. v.; Ess. anis. gtt. xj.—M. Make into pills of six grains each.

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40. *Use of Chloride of Lime in Small-Pox.*—Dr. Gubian, of Lyons, has employed the chloride of lime to prevent the absorption of the purulent matter which takes place about the ninth, tenth, or eleventh days in small-pox, and to counteract the formation of the cicatrices which usually succeed the drying of the pocks. The means used by M. G. consisted in piercing the pustules when in full suppuration, and washing them several times with a weak solution of the chloride of lime; the drying then is very prompt, and the pocks leave no marks. To prevent the effects of a retrocession, M. G. administers mild purgatives. The first case in which he employed this treatment was a young girl; it was attended with the happiest success.—*Journ. de Chimie Médicale, May,* 1830.

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41. *Hooping Cough.*—Dr. Muhrbeck, of Demmin, recommends in *Rust's Magazin*, for 1829, the hydrocyanic acid as a specific in the second state of hooping cough, or when the breathing becomes difficult and the cough convulsive.

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42. *Chlorate of Lime successfully employed in a Case of Cancer Aquaticus.*—"The Noma, or aquatic cancer, is a species of gangrenous pustule of the lips, peculiar to children, and of the nature of which no definite opinions have yet been formed. The local application of the pyroligneous acid has been much vaunted in this disease. In the present case it failed, as well as the hydrochloric acid, and many internal remedies. Mr. Berndt then applied the chlorate of lime to the ulcer, and in the course of a few days the wound assumed a favourable aspect, and it soon healed. The chlorate of lime was made into a paste with a small quantity of water, and applied to the lip of the child. It was applied every two hours during the day, and three times in the night. In proportion as the severity of the disease was diminished, the remedy was less frequently used, and at the end of eight days it was given up altogether, and an ointment substituted of balsam of Peru and myrrh."—*Lond. Med. and Phys. Journ. from the Journ. der Pract. Heilkunde.*

OPHTHALMOLOGY.

43. *Partial Dropsy of the Eye.*—Most of our readers are no doubt aware, that a serous membrane between the choroid and retina has been described by M. Jacobson, of Copenhagen. This membrane appears, when inflamed, to be capable of pouring out a serous fluid, and thus producing partial dropsy of the eye, as in the following instance, described by M. Camus. On examining an amaurotic patient, M. C. found the choroid slightly thinned, with less pigmentum nigrum than usual, and strongly adherent to the sclerotica; it was, however, separated from the retina by a collection of serous fluids slightly cloudy. The retina was thrust forwards and towards the centre of the eye, was more opaque and smaller than when in a healthy state. The vitreous body was diminished in volume, the crystalline atrophied. The optic nerve reduced to its neurilema by the absorption of its nervous matter, a very common occurrence in amaurosis of long continuance.—*Compte Rendu, &c. par M. Bérard, ainée. Rev. Méd. June,* 1830.

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44. *On the Probable Causes of Strabismus.*—M. Pravaz has read to the Royal Academy of Medicine a memoir on this subject; the following are his conclusions, as given in the *Archives Générales,* for May last. 1st. That the inequality

of force of the two eyes is not the cause of strabismus, for the latter exists without the former, and this strabismus would produce no effect in cases where the eye which deviates is not turned completely from the field of vision of the eye which is directed towards the object. 2d. That strabismus is caused by a change in the situation of the crystalline in reference to the opening of the iris, or every other anormal disposition of the refracting surfaces of the eye; strabismus being then a means inspired by instinct to re-establish the regularity of the function, notwithstanding the irregularity of the organ. 3d. That when the paralysis of one of the muscles of the eye destroys the parallelism of the visual axes, the deviation of the crystalline mechanically produced in consequence of the unequal pressure exercised upon the different parts of the eye, tends, after a certain time, to restore the harmony. The disposition of the vitreous humour, not in a single cavity, but in numerous cells of different sizes, and in which they may be secreted in different quantities, enables us to conceive how infinitely the inclination of the crystalline, and the situation of this lens relative to pupil, may vary.

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45. *Case of Partial Amaurosis and Incomplete Cataract cured by the application of an Exutory on the Sinciput.*—This case was reported to the Royal Academy of Medicine, at their sitting of 11th of May last, by M. PRAVAZ. The patient had been affected from his infancy with divergence of the left eye; the right was sensibly the largest, vision with it good, but at a short distance. One day a very violent heat was suddenly felt at the occiput, which heat was perceptible to the touch; dimness was experienced, and from that moment she constantly saw between herself and exterior objects something like a large black fly, which incessantly changed its form. Recourse was had to bleedings, cupping, and blisters, but without benefit; and a cataract was supposed to be formed, when M. Gondret was consulted. He applied an exutory to the sinciput; in ten days the patient was sensibly better, and after three months not only has the obscure spectre disappeared, but the right eye had diminished in volume, the field of vision was extended nearly one-half, and the divergence of the visual axes had sensibly diminished. M. Pravaz stated that he knew many other cases in which the plan of M. Gondret had been productive of equally happy effects. —*Archives Générales, May,* 1830.

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46. *On the local application of Strychnine as a cure for Amaurosis.*—We learn from our foreign journals, that the strychnine has been lately employed in Europe as a remedy for amaurosis. In the Westminster Eye Infirmary it was tried in three cases, but it does not appear to have been productive of any benefit, except in one instance. Mr. MIDDLEMORE, of the Birmingham Eye Infirmary, has, however, he says, witnessed considerable advantage from it in certain cases, and in a communication in the *Midland Medical and Surgical Reporter* for May last, he points out the kind of cases suited to its use, the best mode of applying it, and the cases in which its employment is counter-indicated. "If a patient," he observes, "has overworked the eye by long-continued action, confined to the inspection of objects of the same colour and description, an enfeebled condition of retina, (just as we produce an exhausted state of muscle by over-exertion,) will take place. If a man subject his eye to an unnatural stimulus, by looking for many hours daily at bright substances of the same, or nearly the same colour—or to sudden transitions from an artificial glare to comparative darkness, (as miners)—or to a diminished stimulus, as by working in dark rooms, or places imperfectly supplied with light—or to any cause allowing the visual textures of the eye to remain for a long period in a state of inactivity, as take place where large opacities of the cornea and fully formed cataract exists, the power of the retina will be partially destroyed—its susceptibility to the stimulus of light diminished; but in none of these cases will there be found any structural change in the retina or the optic nerve, any congestion of vessels, or any discoverable alteration from a healthy

and natural condition; nor will the system, in all probability, be found affected; no altered state of health sufficient to account for the dimness of vision will be found to exist. At some kinds of employment it is necessary for the individual to work with the head bent forwards, declining, or the body so distorted as to favour the too liberal flow to the eye, and retard its return; inducing what is termed congestion; a distended state of vessels, unfavourable to free and active circulation; a condition of eye which is also frequently induced by the investigation of minute objects by the aid of powerful glasses. Loss or diminution of the power of vision sometimes comes on from certain causes which diminish the vigour of the system generally; as for instance, after profuse salivation, long-continued suckling, menorrhagia, &c. In all these cases, I believe, the strychnine is calculated to produce great and permanent advantage, in combination, of course, with other remedies suited to the particular exigencies of the case; for example, if the retina be weakened in consequence of diminished vigour of the system, remedies adapted to strengthen the system, and a removal of the cause enfeebling it, might be joined to the local application of the remedy in question. But the power of the retina will not always return with the returning strength of the system; in such cases the strychnine is singularly valuable, producing, with wonderful rapidity, the restoration of the organ of vision. Strychnine given internally does not produce the same beneficial effect upon the retina, as when applied externally. The mode of using it is already before the profession. After having tried it in a variety of ways, and in different situations, I have not been able to discover a better method than that of blistering the skin above the eyebrow, and, after having carefully removed the cuticle, I sprinkle the powder upon the raw surface, taking care to pass a spatula upon the part so sprinkled, to secure it against removal and insure its absorption; a piece of linen, (not greased,) should afterwards be bound upon the part. The quantity with which I generally commence is the twelfth of a grain upon each side, daily augmenting the quantity as the patient is enabled to bear it, until it amounts to two-thirds of a grain upon each blistered surface. Its first effects are, slight pain in the head, increased power of vision, and severe smarting pain of the part upon which it is applied. Some patients cannot bear its application; others require great care and a very gradual augmentation of the quantity to enable them to bear it; whilst others will admit of its application without experiencing any other uneasiness than what arises from its action upon the sore. It is not necessary, I presume, to detail cases in support of my views; such a plan would greatly extend my observations, which I have been studiously anxious to limit. I will now for a short time, draw the attention of your readers to those cases in which the employment of this remedy would be useless or injurious. If the amaurosis be dependent on any morbid condition of the brain; any alteration of the bony structure; any tumour or other substance pressing upon the optic nerve, the effects of former inflammation, such as opaque deposition or partial disorganization, the effusion of blood or morbid growths, the enlargement of the vitreous or displacement of the crystalline humour, producing pressure upon the retina; a varicose state of vessels, as a consequence of distention so continued as to impair their tonic and elastic properties; inflammation of, or disease of, those parts incased by, or anterior to the retina—no benefit could be expected to result from the use of strychnine; but, on the contrary, in many of the cases, material injury might succeed its employment."

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47. *Spiritus Terebinthinæ in Inflammation of the Internal Tissues of the Eye.*—In our fifth volume, p. 505, we mentioned that Mr. Guthrie had treated upwards of thirty cases of inflammation of the internal tissues of the eye with complete success, by the oleum terebinthinæ. R. MIDDLEMORE, Esq. assistant surgeon to the Birmingham Eye Infirmary has since employed it also, with great advantage. "If a patient with iritis," says the latter gentleman, "from extreme delicacy or peculiarity of constitution, be unable to take mercury to

the production of salivation, or if, having taken it, the acute symptoms only be removed, and a chronic disorganizing inflammation remain, I should strongly recommend the administration of turpentine in small doses, say a drachm two or three times a day; the early employment of turpentine I would also urgently advise in inflammation of the choroid and retina."—*The Midland Medical and Surgical Reporter, May*, 1830.

48. *Precautions in the Operation for Cataract.*—A considerable number of cases of cataract have been operated upon during the present season by M. Dupuytren, at the Hôtel Dieu. Depression is the method almost exclusively adopted by him; and in performing this he has the patient placed in bed, and laid on the back, the head being conveniently supported and fixed. By these means he thinks that accidents from the movements of the patient are best guarded against, as well as those which may occur in transporting him from the operating chair back to his bed. One of the inconveniences which M. Dupuytren has most frequently met with in operating for cataract, with the patient sitting up in a chair, is syncope, a circumstance which proves extremely embarrassing to the surgeon. Last spring, M. Dupuytren was called by M. Husson to a patient who had been operated on for cataract a long time before, and who felt some inconvenience in one of his eyes. The operation had consisted in extraction, and had only been performed on one eye. The patient had been placed in a chair, and scarcely had the surgeon finished the section of the transparent cornea, when he fainted so profoundly that the operation could not be completed, the lens remained in its place, the wound healed, and some months after the other eye was operated upon by the same surgeon. The method of extraction was adopted on this occasion also; the patient was again placed on a chair, and syncope came on as before, giving rise to very great difficulty and embarrassment. M Dupuytren was called to him on account of very violent pain which he experienced in the eye which had been incompletely operated on.

Tendency to vomit, and actual vomiting are, as is well known, very frequent after operations for cataract, particularly in children. One of the best methods of removing this, consists in making them drink a few cups of seltzer water.—*London Medical Gazette, May*, 1830, *from the Journ. Hebdom.*

49. *Strychnine as a remedy for Ptosis.*—Mr. Middlemore has found the strychnine of singular service in one case of ptosis, dependent on partial paralysis of the levator muscle. Of course, in ptosis arising from disease of the brain, or any deep-seated or structural injury of the motor nerve, or a thickened and enlarged condition of the eye-lid, it could be of no value.—*Midland Medical and Surgical Reporter, May*, 1830.

50. *Strumous Iritis.* By Richard Middlemore, Esq.—Strumous iritis is a disease somewhat uniform in its appearance and history, obstinate in duration, and very little influenced by the modes of treatment usually recommended for its cure. The individuals most obnoxious to its attacks, are children, between the ages of six and eighteen; of a delicate constitution, fair complexion, light hair, and blue eyes; as soon as the disease has become established, the cornea assumes a misty appearance, patches of red vessels are frequently seen upon its edge; there is a zone of pink vessels around the cornea in various situations; the patient is troubled with profuse lachrymation, and great intolerance of light; the iris is almost inactive, and vision is considerably impaired; the eyebrow appears to project considerably before the eye; the muscles, (if one eye only be affected,) become thicker and stronger than those of the opposite side, from their powerful contraction to exclude the light, and give to the countenance a distorted appearance; the pulse is generally quick and irritable; the appetite uncertain; the secretions unhealthy; the skin dry and harsh, but variable in temperature; the heat of the scalp being oppressively great, whilst the

extremities are often chilled with cold. It would be trifling to enumerate the various plans of treatment recommended for the cure of this troublesome disease: no "one plan" will succeed; a treatment directed to the circumstances of each particular case, will always be necessary; for a delicate child, I should advise small doses of the hydrargyrus c. cretâ every other morning; a grain of quinine twice a day; every other evening, a warm bath, and should the skin be harsh and dry, notwithstanding its employment, friction with the hand, or a soft brush should be used, and on no account should suitable clothing, with a view to maintain perfect warmth of the surface, be neglected; a small issue in the arm; moderate, (not fatiguing,) exercise must not be omitted, and perhaps riding on horseback, surpasses in excellence all other modes of taking it; without specifying any particular articles of diet, I may say in the general, that it should be of a light and nutritious character, animal food being allowed only every other day.—*Ibid.*

51. *Conical Cornea.*—The subject of this disease was a gentleman aged twenty-five. Eight or ten days before consulting M. DEMOURS, who relates the case, he was attacked with dimness of vision. M. D. found both corneæ concave, but perfectly transparent, and there was no inflammation. A seton was placed in the back of the neck, and in a few days the sight was re-established. —*Journal Universel des Sc. Méd. April,* 1830.

SURGERY.

52. *Amputation of the Hip-joint.*—Professor PELIKEN, of Wilna, performed this operation twice in 1820, at the clinical institute of the university of that city. The first patient was a man, aged twenty-six, who was affected with an enormous fungous hæmatodes of the right thigh, commencing four inches below the trochanter, and extending to the knee; the greatest circumference of the tumour was three feet. The patient suffered extreme pain, hectic fever, and was extremely reduced. The case was every way unfavourable, nevertheless Professor Peliken determined to extirpate the thigh. The operation was performed as recommended by M. Larrey; the crural artery was first tied near Poupart's ligament, and the operation then completed. A profuse hæmorrhage however took place, which was afterwards found to be from the profunda femoris, which arose above Poupart's ligament, showing that the advice of Mr. Larrey, to commence the operation by applying a ligature to the femoral artery, will not always prevent serious hæmorrhage. Two months afterwards the wound was not entirely healed, but the patient was gaining strength, and a cure was expected; but his wife gave him a large quantity of cheese to eat, which caused gastric fever, symptoms of typhus supervened, and the patient died the ninth week after the operation.

The second case was a peasant, aged seventeen, affected with caries of the femur with abscess, &c. The operation was performed as in the preceding case; and as in it a profuse hæmorrhage occurred, a violent fever supervened soon after, which carried off the patient on the tenth day.

No serious disease was found on examination in any of the organs. The principal cause of death appears to have been the great loss of blood during the operation.

These cases can hardly be considered very unfavourable to the operation, since death in the first appears to have been caused by indulgence in improper food; and in the second, from accidental hæmorrhage. In fact, in so severe an operation as the present, which should not be resorted to but in desperate circumstances, a very moderate share of success may be considered as justifying the having recourse to it. Of twenty-four patients, whose cases are recorded, five have recovered.

53. *Ligature of the Internal Iliac.*—It is probably known to most of our readers that the internal iliac was first tied for aneurism of the ischiatic artery by Dr. Stevens, of St. Croix, in 1812. The patient lived ten years after the operation. Mr. Lawrence, in his surgical lectures, recently expressed a doubt of the artery having been really tied in this instance. Dr. Stevens being in London at the time, sent the parts, (which he had obtained on the death of the patient, and preserved in spirits,) to the Royal College of Surgeons, where they were dissected, and the fact of the internal iliac having been tied, fully established. The preparation exhibited the internal iliac artery converted into an impervious chord where the ligature was applied, and the remains of the aneurismal swelling on the ischiatic artery. Mr. Lawrence is said to have expressed himself as perfectly satisfied with the dissection.

54. *Lithotrity.*—It is stated in a late number of *La Lancette Française*, that a child, five years of age, was admitted into Hôtel Dieu, with symptoms of stone in the bladder, and was repeatedly examined by MM. Breschet and Sanson, who distinctly felt the stone, with this peculiarity, that M. Breschet felt it always on the right, and M. Sanson on the left side. The child was brought into the amphitheatre, but the stone could not be found. A few days afterwards the little patient was again carried into the amphitheatre; the stone was distinctly felt, and MM. Dupuytren and Breschet alternately introduced the "lithotriteur," but without any effect. On the 2d of July, a third attempt was made; M. Dupuytren felt the stone, but, an injection having been made into the bladder, he could not seize it with the "pince." M. Leroy was now called upon by M. Dupuytren, to try his skill; the stone was directly seized and crushed into pieces; it was rather small, and consisted of the oxalate of lime.

This case proves what we have constantly urged, that a considerable degree of practical skill is necessary in the operation of lithotrity, and that it should not be condemned because unskilful operators fail. It also adds another and no insignificant laurel to those already won by M. Dupuytren, that after having failed himself, he should have had the ingenuousness to afford another an opportunity of showing superior skill in manipulation, and exhibits an honourable anxiety to arrive at truth, and a disregard of selfish considerations, which cannot be too much lauded or too frequently imitated.

55. *Chilblains.*—Professor GRAEFE, of Berlin, states that in the management of these affections, when the pain is considerable, he has found much advantage from the application of leeches. But when the pain is from the first moderate, or has been mitigated by the abstraction of blood, a solution of chloride of lime affords more relief than any other application. He employs it in the proportion of one part of the chloride to twenty-four parts of water, which is to be applied to the part by means of thin pledgets wet with the solution.—*Journal fur Chirurgie und Augenheilkunde*, 13 *Band. Stuck* 1.

56. *Amputation of the Penis by the Ligature.*—The ligature was long since employed by Ruysch, as the best means of amputating the penis. He was doubtless led to the adoption of the operation by the dread of hæmorrhage, which, from the large size of the vessels, and the disposition of the organ to retract as soon as divided, is sometimes very troublesome and alarming. This plan, however, had become entirely neglected, until revived, in modern times, by Professor GRAEFE, who has practised it repeatedly, and with great success. Dr. Michaelis has lately detailed five cases, in which its advantages were strikingly manifest: the part sloughed away in a few days, and cicitrization rapidly ensued. The following is Graefe's method of operating, as described by Bierkowskie, (Chirurgischen Operationen, p. 476, Berlin, 1827.) "A bougie, or silver catheter, is to be passed into the bladder. A strong ligature is then to be drawn upon the penis, at the point at which it is to be removed, as tightly as possible. The part situated anterior to the ligature sloughs away in a short time, and the urine passes through the catheter until the wound is healed. The

operation is not attended with much pain, and when it is necessary to remove the penis near the arch of the pubis, in which case from the retraction of the body of the organ beneath that bone, danger from hæmorrhage would be incurred, we should be disposed to give Professor Graefe's operation the preference over the knife.—*Ibid. XIII. Stuck* 2.

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57. *Cure of a Complete Division of the Trachea and Œsophagus, the individual afterwards breathing through an Aperture remaining at the seat of the Injury.*—Extensive injuries of the trachea and œsophagus are by no means unfrequent, yet the surgeon is rarely called upon to treat one of so interesting a character as that now under consideration. An individual, wishing to escape an arrest for the crime of larceny, cut his throat with a common pruning knife. He was found lying upon his abdomen, with his head resting upon his arms, and was carried to the Alms-house of Keil, for assistance. Professor Lüders, who was called to him, found a transverse wound implicating the anterior part of the neck, of about six inches in length, and having its borders removed three inches from each other. It had penetrated entirely through the trachea, between its first and second cartilaginous rings, and through the corresponding portion of the œsophagus, to the vertebra of his neck. What is somewhat singular is, that none of the important blood-vessels and nerves of the neck were divided, a circumstance which can only be explained by the wound having been inflicted by the point of a curved instrument. The patient was much harassed by a spasmodic rattling cough, occasioned by the passage of the blood from the wounded vessels into the trachea. In this situation he remained throughout the night, and when Professor Lüders found that the case was not immediately fatal, he predicted a protracted death from hunger. A gum elastic tube was attempted to be passed into the lower end of the œsophagus, with a view of throwing nourishment into the stomach, but the attempt was productive of such a violent effort to vomit, that it was relinquished, and to allay the urgent sensation of hunger and thirst, of which the patient complained, tepid milk was directed to be taken in the mouth frequently, so that by attempting to swallow it, a small portion might pass into the stomach. This escaped through the wound, in a stream, and a small quantity of it falling into the trachea, excited much coughing and difficulty of respiration. It nevertheless preserved the mouth and palate in a moist condition, and thus abated the urgency of the thirst. To ensure quietude, an enema of fifteen drops of tincture of opium, with mucilage, was thrown into the bowels. In the course of the night the patient did not sleep, but threw up, from time to time, a considerable quantity of bloody mucus, by violent fits of coughing. An attempt was now made to approximate the edges of the wound, by means of a suture, but as soon as they were brought together, so as to close the aperture, the difficulty of respiration became extreme, the face assumed a livid hue, and the individual was threatened with immediate suffocation, which was only prevented by opening the wound so as to permit the air to enter the lungs. Repeated attempts of the same kind, made in the course of the day, were constantly followed by similar results. Much blood and mucus were also discharged through the wound. The pulse, however, was full and regular, and the patient was free from fever. Towards evening, on the second day after the injury, he complained of hunger, to relieve which a curved tube made of tin, having one end expanded like a funnel, the other terminating in a rounded knob, was attempted to be passed through the wound, so as to admit of the introduction of fluid aliment. On the third day, a small quantity of milk, with the yolk of some eggs, was conducted through the tube, into the lower end of the wounded œsophagus, but not without exciting considerable spasmodic cough and vomiting, by which it was returned through the wound. By the fourth day the patient was somewhat improved. He succeeded in swallowing some milk, only a part of which escaped through the wound, a small quantity passing into the stomach. An attempt to bring together the edges of the wound was followed by the same difficulties as before; an effect which Professor Lüders very rationally ascribes to a paralysis of the muscles of the larynx,

occasioned by the division of the recurrent nerves. On the fifth day the patient swallowed with more freedom. The surface of the vertebra, corresponding to the site of the wound, which had hitherto been naked, was now covered with coagulable lymph, as was also the wound itself, the edges of which had already contracted considerably. A small quantity of milk, mixed with oatmeal, was swallowed, but every attempt to introduce food or drink through the tube, as described above, was productive of the same spasmodic cough and vomiting. In the course of the sixth day, evidences of acute bronchial inflammation were developed. The cough was shrill and troublesome, and was attended with considerable muco-purulent discharge. Appropriate remedies were administered, and by the seventh the symptoms were mitigated. On the ninth day some soup was swallowed, only a small quantity escaping through the wound. From this time, no perceptible opening existed in the œsophagus, the whole severed portion of the tube having become united by the healing process. This was, however, much retarded by the great extent to which the two ends were separated fom each other, and the repeated violence to which the granulations and newly-formed adhesions were exposed, by the spasmodic cough and vomiting. The opening in the trachea in a short time became so small, as merely to admit a small curved tube, which was worn by the patient, and through which he breathed, being unable still to respire through the mouth and nose. In a little more than two months after the infliction of the injury, the individual had so far recovered, that he could speak in a low and hoarse voice, by closing the orifice of the wound with his finger or some other body. Yet he could not breathe for any length of time in this situation. He was, moreover, still affected with a dry, spasmodic cough, with mucous expectoration; but was now deemed in a situation to comply with the sentence of the law, which imposed upon him eight years confinement and hard labour in the house of correction, (*zuchthaus.*) He continued to wear a small silver sound, which he confined in the aperture still existing in the trachea, by means of a band passed round the neck.

Cases somewhat similar to this have been reported, some of which were cured, and others survived several days. The most important are those described by Ambrose Paré, Clacentius, Helwig, Purman, Starck, Debruck, Kurtzwig, Mursinna, Rust, Hennin, &c.—*Journal fur Chirurgie und Augenheilkunde, XIII. Band. Stuck 2.*

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58. *Extirpation of the Parotid Gland.*—There can be no longer any question about the practicability of extirpating the parotid gland, and it must now be admitted, that however plausible the reasonings of Allan Burns were upon the subject, they were fallacious. The following case, as well as several others which have been reported at different times, furnish the most conclusive evidence that the whole of that gland may be, and has been, removed with complete success. The operation to which we now have reference, was performed by Dr. August. Fontheim, of Syke, who informs us that it is the second of the kind he has performed. The patient being placed in a convenient position, an incision was extended from the mastoid process, to within a finger's breadth of the angle of the mouth, and another, commencing from the same point, was carried forwards, so as, with the preceding, to include an elliptical portion of the diseased skin, two fingers wide. The integuments were then dissected up from the tumour, until the operator could insinuate his fingers beneath its anterior border, which he found it difficult to accomplish, and only effected by cautiously cutting up its attachments with the point of the knife. It was then, by the same careful procedure, dissected up from the masseter muscle. The small vessels which were thus far divided did not require the ligature, as the hæmorrhage was easily arrested by the sponge and cold water. But the most hazardous part of the operation yet remained to be performed, inasmuch as the deep portion of the gland was so firmly united with the surrounding parts, extended so profoundly behind the neck of the jaw bone, and above all, had such intimate relations with the large blood-vessels and nerves, that every stroke of

the knife was fraught with danger, and rendered the greatest precaution necessary not to injure any of these parts, nor leave any portion of the diseased mass behind. By dint of perseverance, however, all these difficulties were happily surmounted. The operator drew the tumour towards him, with as much force as he could employ without lacerating its structure, while by working cautiously with the point of the knife alone, he by degrees cut up the surrounding attachments, without injuring either the carotid or internal maxillary arteries. After the tumour was removed, the finger could be passed freely behind the neck of the lower jaw; the whole of the disease had been removed, and in the bottom of the wound, between the mastoid process and the condyle of the inferior maxillary bone, the carotid could be seen exposed and pulsating. The masseter muscle was also dissected clean. The patient complained during the operation of acute pain, which probably arose from the division of the facial nerve. The time consumed was about twenty minutes. The cavity which remained measured, in its longest diameter, which extended from the third molar tooth to the mastoid process, about five inches, and from the zygomatic process to the inferior border of the lower jaw, three and one-half inches. The wound was stuffed with lint, which was confined in its situation by a bandage passing over the head and below the chin. On the thirtieth day after the operation, the patient returned home, having neither paralysis in the face, nor any deformity, except a smooth, red-coloured cicatrix, corresponding to the point operated on.—*Ibid.*

59. *Extirpation of a Degenerated Parotid Gland.*—This operation was performed in January, 1829, by Dr. A. Magri. The tumour weighed two pounds and a half, its greatest circumference was fifteen inches, its smallest twelve inches. The excision was followed by paralysis of one side of the face. An account of the case has been published in the *Annali Universali di Medicina* for November and December, 1829, and a pretty full notice of it is contained in the *Revue Médicale* for March, 1830. There is nothing particularly interesting in the details.

60. *Strangulated Hernia reduced by the use of Belladonna.*—In the *Osservat. Medico di Napoli*, for January, 1830, Dr. Meola relates a case of strangulated hernia successfully treated by frictions with ointment of belladonna over the hernial tumour.

61. *Staphyloraphy.*—M. Roux performed this operation successfully on a man, at the Hôpital de la Charité, May 4th, 1830. The division was congenital and limited to the soft parts. This is the forty-eighth case of divided palate in which M. Roux has performed the operation of staphyloraphy.

62. *Fissure and Spasmodic Constriction of the Anus.*—In our last volume, p. 248, we noticed the treatment of this affection, by M. Dupuytren, by means of the belladonna, and we find in our esteemed cotemporary, the *Journal Générale*, for March last, a case of a very severe character, reported by Dr. Delaporte, in which the ointment of belladonna was used with the happiest effect, after many other measures had been tried without avail. The ointment was made by mixing one drachm of extract of belladonna with half an ounce of simple cerate. A roll of lint was smeared with this and introduced into the rectum; the relief afforded was very prompt.

Another case is recorded by M. A. Laborderie, in the *Revue Médicale* for July last, in which also this remedy was successful. M. L. added to his ointment half a drachm of the liquid acetate of lead.

63. *Large Abscess behind the Pharynx.*—Dr. Prior, of Nantes, reported to the Royal Academy of Medicine, at their sitting of the 2d of March last, the following interesting case. A patient affected with erysipelas of the face, being

exposed to a cold moist air, the erysipelas disappeared. Immediately afterwards, violent pain of the throat supervened. This pain continued for six days, the respiration became obstructed, deglutition difficult, the neck a little swelled exteriorly, nevertheless nothing was observed within the throat. Suspecting an abscess in the pharynx, an emetic was given with the view of rupturing it, but without producing that effect. The oppression, the difficulty of deglutition, and the swelling of the neck went on increasing, the face became dark, the patient agitated, affected with transient delirium, and when he respired he experienced the sensation of a floating body in his throat; he was affected with suffocation on reclining, his voice was altered and nasal. Two days passed, during which the patient's situation was aggravated, and became very alarming. Finally, on an attentive examination of the throat, it was thought that a tumefaction at the posterior part of the pharynx was the seat of an abscess, and fruitless attempts were made to puncture it with a lancet. The next day, however, (the ninth of the disease,) it was opened with a pharyngotome, and a pint of healthy pus discharged. The tenth day a second puncture was made, and an equal quantity of pus of the colour of wine lees evacuated. Afterwards the pharynx was incised, the pus was thus afforded a ready exit, and in a few days the abscess was emptied and the patient cured.—*Revue Médicale, April,* 1830.

64. *Excision of the Uterus.*—This operation was performed on the 20th of June last, by M. DUBLED, on a woman, aged twenty-seven years, affected with cancer of the uterus, which was progressing with great rapidity. The operation lasted twenty-five minutes, very little blood was lost, the bladder was not injured. Nevertheless, in the evening the skin became hot, pulse frequent, thirst great, and abdomen tense. The patient was bled, leeches and emollient fomentations applied to the abdomen. Death took place twenty-two hours after the operation. On examination, the peritoneum and intestines were perfectly healthy. Two ounces of black blood were found in the pelvis. Thus has perished another victim to this operation.—*La Clinique, June 26th,* 1830.

65. *Professor Delpech on Union by the First Intention.*—We gave in our last number, p 508, the opinions of Professor Dupuytren in relation to union by the first intention, and we now offer those of another distinguished French professor, M. Delpech, of Montpelier. If our limits would permit, we should be pleased to give a translation of the whole of the able memoir on this subject contained in the *Memorial des Hopitaux du Midi et de la Clinique de Montpelier,* for March last; as it is, we must be content with presenting the following brief analysis. We regret this the less, however, as we shall shortly lay before our readers a notice of the treatise on union by the first intention, by M. Serre, a pupil of Professor Delpech, in which work the views of the latter gentleman are fully exposed. Professor Delpech is in favour of union by the first intention. 1st, after wounds of the head; 2d, after those of the thorax, either implicating or not the deep-seated organs, it is, he says, an effectual means of preventing pleurisy, 3d, and for the same reason after the operation for empyema, and also to prevent effusion; 4th, and also, for the same reason, in excision of cancerous breasts; 5th, after all wounds of the abdomen, except in hernia with gangrene of the intestine; 6th, after castration; 7th, finally, after all great operations, and especially after amputations. The sudden suppression of a long-continued suppuration is regarded as dangerous. But what is feared in this case? Plethora? It is easy to convince oneself that in the condition in which we have recourse to amputation of a limb, the system is in a state very far removed from plethora. The conditions are, indeed, precisely opposite: wasting from excessive suppuration, colliquative sweats, the impossibility of assimilating sufficient aliment for the necessary reparation, the sceptic tendency of the humours from the absorption of putrescent miasmata, the constancy of the pain, and the impossibility of sleeping; eminently dangerous sympathies. Such in general are the proper motives for deciding, and in fact those which most fre-

quently do decide, the amputation of a limb. When the pus is carried into the vessels, after this operation, and it appears to us impossible that this operation should not be very common, it is necessarily assimilated, for the dangerous effects of this absorption appears rare. By immediate union, the pains which accompany the formation of pus are prevented, the fear of absorption of pus is removed, and the cure is effected infinitely more promptly than when suppuration is permitted to establish itself.' The suture, according to M. Delpech, is the best means for obtaining this reunion, and he has recourse to it even after large amputations, employing bandages only as accessories.

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66. *Case of Non-union of the Humerus, treated by Excision of the Ends of the Bones. Failure.*—This case is related in the *Glasgow Medical Journal* for May last, by WILLIAM AUCHINCLOSS, M. D. The subject of it was a sailor, aged eighteen, admitted into the surgical wards of the Glasgow Royal Infirmary, March 28th. He had suffered a compound fracture of the left humerus at its middle, ten months previously, in consequence of a fall from the mast head. An inch of the bone had to be sawn off before reduction could be accomplished. The limb was afterwards put up in splints. Inflammation and suppuration followed, the wound not healing up for several months, and not till after extentive exfoliation had taken place.

The arm, from the shoulder to the elbow joint, was much wasted, being two inches less in circumference than the other. The bone itself felt diminished fully a third of its usual thickness. The false joint was oblique between the two ends of the bones which passed each other to the distance of an inch or more. The point of the lower portion was adherent to a cicatrix, in the situation of the original wound, over the tract of the humeral artery. Being apparently in a good state of health on admission, the operation by excision of the ends of the bones, was then agreed to in consultation. It was deferred, however, in consequence of symptoms of peritonitis occurring on the 31st, for the cure of which he was bled generally and locally, purged, blistered, and put under calomel and opium.

This person returned to the hospital on the 17th of May in excellent health, having sojourned in the country during a period of three weeks. The operation was performed on the 20th. An incision three inches long was made along the outer margin of the triceps. The ligamentous connexion between the ends of the bone being divided, the upper shaft was easily projected through the wound, and about an inch of it sawn off. The same extent was removed from the lower half, but during this stage of the operation, considerable difficulty was experienced, owing to the adhesion of its point to the cicatrix on the inside of the arm. A small portion of the cicatrix had therefore to be removed. The soft parts were so much wasted and matted together by the previous inflammation and suppuration, that it was difficult to distinguish their anatomical relations. The humeral artery and a nerve, supposed from its size to be the median, were exposed, but neither was injured. He bore the operation well. The ends of the bone being properly adjusted, the wounds were brought together by straps, and the arm put up in splints, and bandaged to the chest. Thirteen weeks after the operation there was no appearance of osseous union, the patient began to despair of a cure and left the hospital. At this period the bones were not in perfect apposition the outer half of the lower shaft being opposed to the inner half of the upper. Such was the difficulty in the management of the case in this particular, that every mode of bandaging had recourse to was altogether ineffectual in overcoming the tendency which the extremity of the lower portion had to point inwards. This was owing, in a great measure, to its position being incorporated with the cicatrix, previous to the operation. The splints used were of sufficient length to restrain completely the motions of the elbow.

Latterly, the surfaces of the ends of the bones were smartly rubbed on each other, and the splints and bandages carefully applied.

This case was considered by all the surgeons in consultation, as being in every respect a favourable one for the excision of the ends of the bones. Yet this painful operation was inflicted upon the patient without benefit. With every respect for the judgment of Dr. Auchincloss, we cannot assent to the correctness of his opinion that the seton was contra-indicated in this case; on the contrary, we have strong suspicions that it would have been successful, and, in the present condition of the case, we should not hesitate still to resort to it.

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67. *Fungous Tumour of Mamma successfully excised.* By James Syme, Esq.—"Jean Hey, æt. 37, admitted 19th February, on account of a large fungous tumour growing from the upper part of the mamma, not involving the nipple or skin below it, and not seeming to adhere to the subjacent parts. It is of an irregular shape, of a dark-red colour, of a soft consistence, and bleeds freely when touched; the discharge from it is thin, dark-coloured, fœtid, and very copious. The patient is extremely emaciated, her countenance is anxious, and her complexion of a remarkable unhealthy looking yellow hue. She has little appetite, and what food she does take is generally rejected by the stomach. She has frequent fits of sickness, which she ascribes to the smell from her breast; she complains much of pain, and passes restless nights. Pulse quick and weak.

"Last May she had an infant seven months old at the breast, and was much confined to the house. She caught cold one day from going out, and was attacked with erysipelas in the face, which went off the following morning. She continued to be sick and squeamish occasionally for six weeks, her appetite being bad, and her thirst great, when she felt a small hard lump just under the nipple of her left breast. It increased in size, the child still continuing to suck, and formed a large elastic swelling, discoloured on the surface, and very painful. After poulticing it for some time, she applied to a surgeon, who made an incision, and evacuated twenty ounces of a dark-coloured fœtid fluid, and on two other occasions, within the following ten days, discharged two teacupfuls of the same sort of matter. Poultices were again applied, but the pain and discharge continued, and an abscess formed, which being opened in January last, was found to contain six ounces of thick fœtid pus. The opening did not close, but the skin, as she described it, began to fall off in small pieces round the wound, while fungous masses at the same time protruded.

"23d. Mr. Syme being willing to afford the patient the only chance she had of recovery, proceeded to excise her breast. He included the tumour along with the nipple, within two semilunar incisions; it adhered slightly to the pectoral muscle, and after dissecting it off he discovered a small round tumour lying under the muscle, which he likewise removed. The edges of the wound were brought together with some difficulty, owing to the large quantity of skin removed, and retained by means of stitches. She was ordered beef-tea and wine in small and repeated doses. The diseased part being cut through after the operation, exhibited a very characteristic specimen of medullary sarcoma.

"24th. Has passed a very restless night, having had profuse diarrhœa. She was ordered half-grain opium pills, to be taken according to circumstances; the stitches to be supported by broad pieces of plaster; beef-tea and wine continued. 25th. The diarrhœa ceased after the first pill. She is looking a good deal better; sickness less; pulse stronger; countenance not so anxious.

"March 2d. She is improving rapidly. Her appetite is now pretty good; pulse stronger; wound looking healthy. To have porter.

"15th. Wound almost completely healed; desires to go home to attend to her family."

I have given this case at full length from the journals of the Hospital, both because the history of it is rather unusual; and because it shows the possibility of complete temporary recovery by operation from apparently the most hopeless cases of this disease. When I was asked to see this poor woman, she was in the most wretched state it is possible to conceive; the air of the room was poisoned with the stench that proceeded from a discharge so copious as to drench her clothes and the bed on which she lay; her stomach rejected food; and her pulse could hardly be felt. The second time I visited her, I found her busy in the performance of domestic duties, strong and active, while the breast was perfectly healed, and apparently free from any disposition to give her further trouble.* It has long seemed to me that we are in the custom of comprehending under the title of medullary sarcoma, many morbid growths of very different morbid tendency. Some of these tumours never fungate, though allowed to attain a great size; many of them fungate, but never bleed; others manifest the most remarkable hemorrhagic disposition; and there is the greatest variety with respect to their recurrence after removal. Such being the case, it would seem to be our duty, so long as we have not ascertained the distinctive characters, if there be any, of those of a malignant nature, to afford the patient a chance, by performing the operation whenever the whole existing disease can be taken away.—*Edinburgh Medical and Surgical Journal, July*, 1830.

68. *Case of Hare-Lip, with protrusion of the central part of the Alveolar Process of the Upper Jaw.* By ANDREW DEWAR, Esq.—The subject of this case was a boy aged 7 years. At the time he came under Mr. Dewar's care "the part of the integuments, which should, in the natural state, have formed the middle of the lip, and closed in the septum of the nose, was separated from its ordinary connexions, and hung depending from the tip of the nose. That portion of the upper jaw, out of which the two front teeth grew, was in like manner detached from the rest of the alveolar process, and carried forward and upward, the uppermost part being thrust into the nostrils, and the teeth projecting forward. The nostrils were thus forced greatly asunder, and the soft parts descended from the cartilage of the nose, on each side, in a line slanting towards the corner of the mouth. This projection of the alveolar process, which was covered by its ordinary thin and red membrane, and crowned with two teeth, was separated from the integument of the cheek by a space on either side, which would readily have admitted a large quill.' In consequence of this unsupported and flaccid state of the soft parts around the mouth, the lower lip hung down large and prominent, and the saliva ran constantly from the mouth. Altogether, the boy, the upper part of whose face was more than ordinarily interesting and intelligent, presented an appearance singularly hideous.

"I resolved to make an attempt to remedy the mortifying deformity under which this poor boy laboured. Taught by experience, I determined first to remove the projecting part of the alveolar process, and allow the wound thus inflicted to heal before attempting to close in the mouth. Accordingly, I drew a knife around the root of the projection, and, with a pair of cutting pliers, separated it from its attachment to the septum of the nose. I was happily enabled to leave the septum of a sufficient depth to form a well-defined partition between the nostrils.

"In about a week, the injury was sufficiently repaired to allow me to proceed to unite the soft parts, so as to form a lip. The integuments were very scanty, for, as I have already stated, they ran downward and rather outward, on either side, from the alæ of the nose, which in this case were unusually dilated, in consequence of the pressure of the projecting bone. I cut off the edges; and, by passing one pin as high, and another as low as possible, I succeeded in bringing the sides of the wound into accurate contact. The piece of thickened integument which hung from the tip of the nose being useless, I cut it off.

"The chief obstacle in all such cases to the healing of the wound, arises from the strain which is thrown upon the pins, from the natural tendency which the cheeks have to retract, more especially on any motion of the mouth, as in eating, speaking, crying, &c. Irritation and pain are thus produced, and the healing process is greatly interrupted. In this instance the disposition to retraction was very considerable. This I endeavoured ineffectually to obviate by compresses and strips of adhesive plaster. Louis's bandage was likewise tried, but with no better effect; a contrivance which I have, in every instance, found equally troublesome and inefficient. It occurred to me, that, as a very slight degree of pressure on the cheek on each side near to the corner of the mouth relaxes the upper lip, a narrow piece of steel having a spring might be so adapted as effectually to answer my purpse. I had, accordingly, a spring made, nearly resembling a pair of sugar-tongs, and so padded as to press on the cheek near the mouth. It was kept in its place by a narrow tape tied over the chin, and by three tapes which were fastened one behind, and one on each side, to a piece of leather placed on the crown of the head. This simple contrivance answered every purpose admirably. I could relax the lip by it to any degree I wished, and it could be worn without the smallest inconvenience. The strain was thus taken off the pins, and the process of healing advanced in the most favourable manner. One pin was withdrawn on the fourth, and the other on the fifth day. The spring was worn for a few days longer. On the ninth day the boy returned home so much changed in his appearance, that it was scarcely possible to recognise him. The saliva which formerly ran from his mouth, he can now fortunately retain."—*Edinburgh Medical and Surgical Journal, July,* 1830.

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* Since this was written, I have learned that her health is again breaking up.

MIDWIFERY.

69. *Transfusion in Uterine Hæmorrhage.*—Dr. Savy relates, in the *Journal Universel* for March last, a case of uterine hæmorrhage in which transfusion was resorted to with success. The hæmorrhage occurred at the third month of utero-gestation; the patient was aged thirty-six years.

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70. *Employment of Secale Cornutum in a Case of Hæmorrhage from Inertia of the Uterus.* By M. P. L. Maurage.—M. Maurage was called to a woman who had been delivered seven hours, after a natural, but long and painful labour. The placenta was not expelled, and a violent hæmorrhage, which had arisen immediately after the birth of the child, still continued, and produced frequent syncope. The patient's face was pale, and she appeared much exhausted: pulse sixty, but scarcely perceptible. Upon examining the abdomen, no projection of the uterus was discoverable. The belly was supple, and not painful. The cervix uteri easily permitted the introduction of the hand, and it was ascertained that the placenta adhered throughout nearly its own extent. The uterus appeared in a state of complete relaxation. No contraction was produced by moving the hands and fingers about within its cavity, or by friction on the abdomen. Under these circumstances, it was apprehended that the hæmorrhage would increase if the placenta were separated, from a want of uterine power, and it was determined to give the ergot.

M. M. withdrew his hand from the uterus, after having kept it in about fifteen minutes. Ten grains of coarsely-powdered ergot were infused in four ounces of sugar and water, and given at one dose. In fifteen minutes the hæmorrhage was less, but the patient had experienced no pain. In one hour the hæmorrhage was not half so great as it had been, but still the uterus did not contract. In two hours from the first dose of the remedy, the same quantity was repeated: and in twenty minutes more the hæmorrhage ceased entirely, and contractions of the uterus were plainly felt through the abdominal muscles. After waiting an hour, attempts were made to extract the placenta, but the cervix uteri was so much contracted as scarcely to admit one or two fingers. The placenta still remained adherent to the uterus; but, as the hæmorrhage had ceased, and there was no necessity for any immediate measures, M. M. waited still two hours longer, when the pains having entirely subsided, and the natural separation of the placenta no longer probable, a third dose of the ergot was given. In fifteen minutes afterwards, the pains in the back returned, and in about an hour slight uterine contractions took place, which gradually expelled the placenta in the course of three or four hours. Its expulsion was not attended by any hæmorrhage or severe pain, and the patient recovered perfectly without any unfavourable symptoms.—*Archives Générales, April*, 1830.

MEDICAL JURISPRUDENCE.

71. *On Poisoning by Mercurial Preparations*.—The following question was submitted to M. Orfila—Is the presence of a certain quantity of metallic mercury in the digestive canal of a person who has died after exhibiting symptoms of poisoning sufficient to prove that he was poisoned, when it is certain that mercury has neither been swallowed nor injected into the rectum? To solve this problem, M. Orfila instituted two series of experiments: in the first he poisoned dogs with different mercurial preparations, protoxide, deutoxide, deutochloride, proto and deuto-sulphates, proto and deuto-nitrates, &c. The animals being dead, he sought, in some instances the next day, and sometimes after many months of inhumation, if there existed metallic mercury in the digestive tube of these animals: finally, mixing these same poisons with substances which have the power of reducing the mercury, as the oil of turpentine, arsenic, iron, copper, albumen, gelatine, &c. he poisoned other dogs with these mixtures, and endeavoured to discover in the primæ viæ metallic globules. The conclusions to which all his experiments have led him, are the following:—1st. That poisoning can only be suspected when a certain quantity of metallic mercury is discovered in the digestive tube, if moreover it is certain that it has neither been swallowed nor injected into the rectum. 2d. The suspicion is increased if there is found at the same time in the digestive tube the remains of the substance that has caused the reduction of the mercury, or the new composition produced by the union of the two. M. Orfila thinks that metallic mercury will never be found in the stomach of persons subject to the use of small doses of mercurials, either by the mouth or by frictions. M. Orfila reported these experiments to the Royal Academy of Medicine on the 30th of March last, and his Memoir is printed in the *Journal de Chimie Medicale*, for May, 1830, and also in the *Archives Générales* for the same month.

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72. *On the Poisonous effects of certain spoiled articles of food.*—It is well known that certain articles of food have been frequently observed on the Continent to acquire poisonous qualities of a peculiar kind, and in a way which chemists and physicians have not hitherto been able to explain very satisfactorily. Among these articles the most frequent are a peculiar variety of sausage, and a particular kind of cheese used in Germany; but both in France and Germany bacon and ham have been also several times found to acquire poisonous qualities analogous to those which characterize the sausage-poison and cheese-poison. A very elaborate inquiry into an accident supposed to have arisen from spoiled ham has just been published by *M. Ollivier*, in the *Archives Générales de Medecine*, for February 1830. His investigations set completely at rest the common notion that such accidents arise from the accidental impregnation of the meat with metallic poisons; but he has not succeeded in discovering the real cause.

In the instance which gave rise to his investigation, the master of a family purchased a ham pye at a pastry-cook's in Paris; and the whole family ate the meat of the pye the same day, and the crust on the following day. Three hours after dinner the master of the house was seized with general uneasiness, followed by cold sweats, shivering, violent pain in the stomach, and frequent vomiting; then with burning thirst, extreme tenderness of the belly, so that the weight of the bed-clothes could scarcely be borne, profuse purging, and colic of extreme violence. His daughter, twenty-seven years of age, and a child nine years old were similarly attacked. A physician who was called to their assistance soon after they were taken ill, drew up a minute report of the symptoms in each of his patients, and declared that they had a violent inflammation of the stomach, which he was inclined to ascribe to natural verdigris, or the carbonate of copper having been communicated by the pastry-cook's moulds. In a few days all the three individuals recovered under an antiphlogistic treatment. About the same period several accidents of the like nature occurred among the customers of this pastry-cook: and in consequence a judicial investigation was ordered. The shop being properly inspected, it was found that every operation was conducted with due attention to cleanliness. *MM. Ollivier* and *Barruel* were appointed to analyze the remains of the meat which produced the cases first mentioned, as well as the alvine discharges of the child.

The alvine discharges had a leek-green colour, and were not fetid, but of a sour smell. Sulphuretted hydrogen did not induce any change in colour; neither was any change of colour produced by the same reagent after the fluid was filtered. The remains of the pye had become mouldy. The meat and paste were separately examined. The contact of sulphuretted hydrogen did not produce any change of colour in either. When they were incinerated in a crucible, and the residue treated with diluted nitric acid, the filtered liquid on being neutralized with ammonia did not give any precipitate with ferrocyanate of potass, or with sulphuretted hydrogen, and did not become blue with ammonia. Another portion of the remains of the pye was treated with alcohol and a few drops of acetic acid, and the alcoholic solutions were evaporated to the volume of half a drachm. The residue was agitated with four times its volume of distilled water, filtered and evaporated, and dissolved again in water. This solution was not affected by sulphuretted hydrogen or by nitric acid. These experiments furnish ample proof that the pye did not contain a trace of arsenic, copper, antimony, or lead. The only conclusion, therefore, which M. Ollivier conceived it possible to draw was, that the ham had in some way or another acquired the poisonous properties sometimes remarked in German sausages, cheese and ham.—*Edinburgh Medical and Surgical Journal, July*, 1830.

CHEMISTRY.

73. *Animal Charcoal.*—M. Thouery, pharmaceutist of Soloniac, says that animal charcoal destroys the bitter principle of different medicines with which he has boiled it. He has experimented with quinquina, the lichen islandicus, fucus helmintho-corton, centaury, wormwood, germander, gentian, wild chicory, aloes, seeds of the nux vomica, stavesacre, cèradilla, &c.—*Journ. de Chimie Médicale, July*, 1830.

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74. *Test of Morphium and its Acetate.*—M. Serullas states that when iodic acid is added to a fluid containing morphuim or its acetate, the peculiar odour and colour of iodine is instantly manifested; and this is the case when the menstruum is large, and the quantity of morphium as small as one-tenth of a grain. M. S. further states, that the quinine, cinchonine, veratrine, strychnine, brucine, or narcotine, have no action upon the iodic acid.

After very judiciously observing that the indications furnished by reagents, never are sufficient to enable us to decide positively on the presence of bodies in medico-legal researches, except in a few cases, but that they are auxiliary means which should always be had recourse to as furnishing lights which may lead us to more positive research; he says, I point out then the iodic acid, and the acid iodate of potash, as extremely sensible reagents to detect the presence of morphium or its acetate, not only when by itself, but also in mixture with other vegetable alkalies; the latter having no action upon the iodic acid.—*Journ. Général, May*, 1830.

75. *Estimation of the Vegeto-alkali in Peruvian Bark.*—MM. Henry and Plisson, M. Tilley, and Professor Gobel, have each published processes by which the quantity of quinia or cinchonia contained in any sample of bark may be determined. The following, devised by M. VELTMAN, may be applied to small quantities, is easy of execution and exact:—Fifty-five grains of the bark in fine powder is to be mixed with an equal quantity of washed siliceous sand, the grains of which are about half the size of poppy seed; this is to be well mixed with five drops of muriatic acid and twenty drops of alcohol, and pressed lightly into a glass tube four inches and three-quarters long, and six-tenths of an inch in diameter, one end of which has been covered with a little piece of muslin, and then inserted in a close vessel. The other end of this tube is to be connected by a bent tube with a small flask filled with a mixture of an ounce and a half of alcohol, and twenty drops of muriatic acid; the bent tube should be two-tenths of an inch in diameter; one end should go to the bottom of the flask, the other should reach the surface of the mixed bark and sand. The alcohol in the flask is then to be boiled by a small spirit lamp. It will pass through the tube and extract all that is soluble. If the ebullition be performed slowly, the last drops of alcohol pass nearly colourless. The reddish-brown alcoholic tincture is to be precipitated by hydrated lime, after twelve hours it is to be separated by a filter, the liquor is to be rendered slightly acid, evaporated until in a soft state, then dissolved in one hundred and twenty grains of water, and precipitated by a few drops of caustic ammonia. The precipitate being dried, indicates the quantity of alkali in the bark. In this way M. Veltman found that from 3.3 to 6.[illegible] parts of vegeto-alkali were combined in one hundred parts of different varieties of bark.—*Brande's Journal, July*, 1830, *from Bull. Univ. c. xx. p.* 297.

76. *Tests of Nitric Acid.*—Dr. O'SHAUGHNESSY, a graduate of Edinburgh, has made some important observations on the tests for nitric acid. He finds that Liebig's test for this acid in a free or combined state, which has been introduced into almost every chemical work of note published since his announcement of it, is so open to fallacy, that no reliance can be placed on it in any medico-legal inquiry. Sulphuric acid and muriatic acid in somewhat larger proportion to the blue solution of indigo than is required in the instance of nitric acid, will effect a complete decolorization of the test; and we have since been informed by him, that muriate of iron, and even muriate of soda, possess the same property. He likewise makes some objections to the use of the test derived from the deflagration of combustible substances with the neutralized acid, and even to that derived from the action of the acid on certain metals, such as tin or copper. As to the latter test, we do not exactly see that it is liable either to fallacy or to any difficulty in the way of applying it; but the former property, as he remarks, certainly does not distinguish nitric acid from chloric acid; and, on the whole, he is probably correct in supposing that any of the three properties now to be mentioned is more characteristic—the orange colour struck by the acid with morphia—the formation of fulminating silver—and the crystallization of nitrate of urea in a concentrated solution of urea. Of these we should consider the last as by far the most characteristic and elegant test. In compound organic mixtures he recommends the following method of analysis for detecting small proportions of nitric acid:—First filter the mixture, water being added if necessary; then throw down the gelatin if there is reason to suppose any present by means of tannin; next neutralize with carbonate of potass and boil with animal charcoal; filter again and gently evaporate to dryness. Of the remaining mass introduce one drachm into a small retort of the capacity of two ounces, add an equal weight of concentrated sul-

phuric acid, and apply a distilling heat—the product being condensed in a small receiver by means of a few drops of distilled water. With the fluid thus procured try any or all of the three tests mentioned above, the colorizing of morphia, the formation of fulminating silver, and crystallization of nitrate of urea.—*Edinburgh Medical and Surgical Journal, July*, 1830.

MISCELLANEOUS.

77. *Plague.*—We noticed in our last number the assertion of Dr. Madden, that he went to the East an unbeliever in the contagion of plague, but that the facts he had there observed forced him to change his opinion, and we quoted the principal circumstances on which his opinion seems to have been founded. These appeared to us to have been very far from justifying such an alteration of sentiment, and we then suspected that Dr. Madden was deceived with regard to his previous opinions, or he must change them upon slight grounds if he has satisfied himself of the contagion of plague by the proofs he adduces, when so many strong facts in support of an opposite opinion were observed by him. This suspicion has been further confirmed since we have read the second volume of these Travels, in which the author relates additional evidence against contagion. Thus, he says, at San "a cemetery was pointed out to me, in which three hundred black soldiers of the Pacha were interred two years ago, all having died of the plague. They were encamped outside of the village, and *not one of the fellahs was infected.*" Again, he remarks, in 1818 a vessel arrived at Damietta from Syria with "a great number of Turkish passengers; they were all infected, and were distributed over Damietta before the fact was known of their illness. In the course of ten days, most of them died with unequivocal tokens of plague, buboes and carbuncles, yet *not an individual of Damietta took the disease.*" We have now placed before our readers all the facts in relation to the contagion and non-contagion of plague adduced by Dr. Madden, that they may judge how far Dr. M. has made out his case. For ourselves, we *did* believe in the contagion of the plague, but the circumstances related by Dr. M. have almost convinced us that we were wrong, and that plague, like yellow fever, is only contagious in an infected atmosphere.

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78. *Lunatic Asylum of Charenton.*—It is shown by the reports of this institution, that the months during which the largest number of lunatics are admitted, are June, July, and August; those during which there are the fewest admissions, January, November, and May. Lunacy occurs most frequently between the ages of thirty and thirty-five. Nearly a half of the lunatics admitted are unmarried, and the greater number females. There are generally but few married men or widowers. The army furnishes a great number of lunatics, and the number of officers is far greater than that of private soldiers. In male lunatics mental derangements are mostly brought on by domestic troubles and reverses of fortune; in women, jealousy, disappointed love, and religious excitement are the most frequent causes. More women recover than men, and the age least unfavourable for cures, between the twenty-fifth and thirty-fifth year, that most fatal, between the fortieth and forty-fifth year.—*Journal Universel, March*, 1830.

AMERICAN INTELLIGENCE.

On the Influence of the Climate of St. Augustine, Florida, on Pulmonary Affections. Communicated by J. C. WARREN, M. D. Professor of Anatomy and Surgery in Harvard University, Boston.

To the Rev. Dr. Porter, Theological Seminary, Andover.

DEAR SIR,—Having learnt that the state of your health caused you to visit St. Augustine, in Florida, I beg leave to propose some questions in regard to the influence of the climate of that place on pulmonary affections. Physicians in this vicinity are often much at a loss, in deciding between the climates of Havanna, St. Croix, and other places in the south, which may, on the whole, be preferable. I would, therefore, beg leave to avail myself of your personal experience on this subject, for my own benefit and that of others, in asking your opinion as to the climate of St. Augustine generally, and as to some particular points, which I will state:—

1. What is the common temperature of St. Augustine in the winter and spring months?
2. The range of the thermometer in these months?
3. The fluctuations of the thermometer as to their suddenness?
4. The degree of humidity of the atmosphere?
5. The frequency of cloudy, rainy, and of clear weather?
6. The predominant winds, and whether they blow over sea or land?
7. The character of the surrounding country—especially as to collections of fresh water, and slow streams of water?

Generally, whether you consider that climate favourable to pulmonary complaints, and to any other chronic affections?

The accommodations for the sick, and whether there is a physician residing there?

The population of the place. Its supply of articles of food, especially vegetables and fruits?

I am aware that it may not be in your power to answer all of these questions fully; but any information you can give respecting them will be valuable to the public, and will confer a favour on,

Your very respectful friend and servant,
JOHN C. WARREN.

Boston, Sept. 8th, 1830.

To J. C. Warren, M. D. Professor of Anatomy and Surgery in Harvard University, Boston.

MY DEAR SIR,—I regret that urgent official engagements, incident to the close of our academical year, have unavoidably delayed till this time, my reply to your inquiries respecting St. Augustine. I well know the sacrifices and solicitude of an invalid, compelled to seek refuge from the northern winter; and am aware that, for the coming season, not a few in these trying circumstances, must speedily make up their decision on a question deeply interesting to themselves and their friends. I know too, from personal experience, and from the testimony of eminent physicians, in Europe and in this country, that the choice of a proper residence for pulmonary invalids, in winter, is a subject environed with difficulties; and that these difficulties are most felt by those gentlemen in your profession, who are most frequently called upon to give advice in these cases. The personal obligations which I have long been under to yourself, and the slightest hope that any advantage may accrue to others who need your professional advice, induce me most cheerfully to answer the inquiries of your letter in the best manner I am able.

I enclose to you an abstract from the meteorological diary kept at the military post in St. Augustine, which I procured in anticipation that I might apply it to some useful purpose. This abstract, which was obligingly made for me by A. Anderson, M. D. I presume is accurate, with the exception perhaps of one or two mistakes, which I suspect were made in transcribing the figures; and this alone is a better answer to some of your questions than any other I could give.

To the first and second questions, this table I presume furnishes an adequate reply. During the fifty months for which it was kept, including four winters, the thermometer in no case sunk below 42° of Fahrenheit; except that in 1829, the coldest winter perhaps ever known at St. Augustine, it sunk once in January to 28°, in February to 30°, and in March to 30°. The same temperature is denoted by vegetation as by the thermometer. The tropical products, such as sugar-cane, figs, and oranges, grow there in perfection, and garden vegetables thrive during the winter months.

As to *suddenness* of *fluctuation* in the thermometer, the monthly mean temperature of the table shows that the climate is much more equable than can be found any where north of Florida. Instead of the violent transitions of 30 degrees in 24 hours, which are not very uncommon in New England, and even in South Carolina, it is rare that a change of 10 degrees in the same day occurs in St. Augustine.

As to *humidity* of the atmosphere, I cannot answer with as much precision as I could wish, having seen no barometrical observations. The soil, being sandy and calcareous, is remarkably absorbent: so that after the heaviest shower, within an hour perhaps, there is no appearance of water in the streets. The air is certainly not as dry as that of our elevated grounds in New England, during the driest parts of our winter or summer, but the dampness that does exist with us is much more deleterious to health. In St Augustine it is common for ladies to sit or walk in the evening air, without any covering to their heads, and yet without harm. This is probably owing to the fact, that the dampness is much like that on ship-board in the gulf-stream, which passes near the shore of Florida, and renders its air mild, equable, and tonic. The consequence is, that what we mean by *influenza*, it almost unknown there, and *common colds* are very harmless, generally passing off in a short time.

Besides the answer to the fifth inquiry contained in the table, I add, that, in distinction from our northern latitudes, as well as those of the West Indies, St. Augustine has no *long storms*, and no *rainy season*. Sometimes it has a violent storm of 24 or 30 hours, but rain generally falls in *showers*, succeeded by fine, fair weather. I have not found any meteorological tables by which I could satisfactorily compare the climate of the West Indies, or Italy, or the south of France, with that of St. Augustine, as to the number of fair days in a month. As to our own country, the only document to which I have access, of sufficient extent and accuracy to be relied on, is a register of weather, kept for 25 years, at and near New Haven, Conn. This gives an average, for the whole time, of about thirteen fair days in a month; whereas the average at St. Augustine appears to be about twenty-two. And were the comparison limited to the worst months in our climate, it would be much more encouraging to the migration of northern invalids; for example, according to the St. Augustine table, the number of clear days in March, as given for different years, is thus 24, 27, 20, 27; whereas according to the New Haven Register, in three out of four successive years, March had but eleven fair days, and twelve in the other.

The *predominant winds* are from some point of *east;* and coming from the main ocean across the gulf-stream, possess a vitality, and a genial softness, very exhilarating to the invalid. There are, however, occasional seasons of sharpness, rendering a little seclusion among the orange groves, better than lodgings immediately on the shore.

The *surrounding region* on the land side, is flat, but sandy. No marshes or stagnant streams are sufficiently near to vitiate the air of the city; yet I observed that when the wind blows from west or southwest, delicate people are more indisposed than when it blows from the eastward.

For pulmonary complaints, where there is no fixed organic disease, I think the climate eminently favourable. I think so, because I have seen its favourable influence in many cases, and have heard of it in many others. But if disease of lungs has made such progress, that change of structure is begun, a more interior and less tonic air, I presume, would generally be better. The air of the city, however, has proved remarkably restorative in some cases of apparently regular consumption. In cases of dyspepsia, and other chronic affections, all the advantages may be expected here, that may be looked for any where, from a mild, pure, elastic atmosphere.

The *want of good accommodations*, particularly rooms for the sick, has heretofore been a subject of much complaint. This inconvenience was seriously felt the last winter, especially after the number of stranger invalids increased to sixty or eighty; and these from nearly every State, from Georgia to Canada. The houses are mostly in the Spanish style, old and uninviting. The spirit of building and repairing, however, which prevailed last season, will provide very comfortable lodgings, I presume, the coming winter, for most who shall need them. The want of fire-places has begun to be remedied in the more ancient rooms by the introduction of stoves. There is no deficiency as to medical advice, several respectable physicians residing in the city, one of whom, Dr. Anderson, has had much experience in New York, as physician to the "Infirmary for diseases of Lungs," and who has exchanged his residence for the benefit of Mrs Anderson's health.

The *population* of the place has been estimated sometimes at two thousand, and sometimes at three thousand five hundred; the returns of the late census I have not seen.

My own restricted habits as to *diet*, render me incompetent to judge how far men who are fond of *free living* would be satisfied at St. Augustine. I heard some complaining, but remembered that invalids from home, are often querulous, and oftener still injudicious as to the variety and richness of food which they demand. Bacon, poultry, pigeons, venison, excellent fresh fish, sweet potatoes, and other garden vegetables, may be had in sufficient quantities. I saw no reason for complaining as to food, except that milk is inferior and rather scarce. The water too is inferior, though not unhealthy. The principal fruit is the sweet orange, which grows in abundance, and in the highest perfection. The price of board is about a dollar a day, and washing fifty cents a dozen.

The actual health of St. Augustine speaks much for its climate. In nearly three centuries, since its settlement, it is said but one instance of malignant fever has been known: and that is ascribed to the indiscretion of the Americans on the transfer of the country to the United States. The present American population comprises a number of very respectable families, which are constantly increasing. A Catholic, a Presbyterian, and a Methodist church are erected, and one for Episcopal worship is in contemplation.

But for incessant interruptions in writing the above statement, it would have been more valuable both for exactness and brevity. Probably the interior of Cuba or Santa Cruz may have some advantages, as a winter climate, over Florida; yet after thorough inquiry, and having been once at Havanna myself, I preferred St. Augustine: because its language and government are those of my own country; because its facilities of intercourse with one's friends, by water and by mails, are a great convenience; and because it is easy of access, compared with any foreign residence. My passage was five days from New York to Charleston, and thence to St. Augustine twenty-five hours; returning to Charleston two days. Three good packets ply between the two cities; the passage varies with the weather, from one to four and even six days.

I will close this long communication, by hinting at several mistakes which I have observed to be often committed by those who travel for pulmonary complaints.

1. Deferring a change of climate till organic disease has fixed on the lungs, and then with glimmering hopes, and at immense sacrifices of comfort, migrating southward only to expire among strangers. Several persons who died last winter, soon after their arrival in Florida, might have lived longer probably, though under the sufferings of a hopeless malady, amid the comforts of a northern home.

2. Going southward only a few degrees of latitude, and stopping to winter amidst rain, and sleet, and mud. In my opinion it is better to remain on a steady *terra firma* of frost, with a dry atmosphere, or to go beyond frost.

3. Going to the *sea-coast* of the southern states. The up-country of South Carolina and Georgia, except in rainy seasons, presents a fine winter climate to the northern invalid, if he is properly careful to guard against violent transitions of temperature. But it is a great mistake to suppose that the corresponding latitudes on the sea-coast, because warmer, must be more favourable to diseased lungs. This delicate organ, when predisposed to irritation, is certainly injured by the great *humidity* of what southern physicians often term the *malaria* country of the south. Charleston, for example, besides other and great attractions to strangers which it possesses, has an excellent winter climate for good constitutions; but is by no means a proper residence for consumptive persons. The same thing is true, probably to a smaller extent, of Savannah, and to a considerably greater of New Orleans.

With great respect I am, dear sir, yours, &c.

E. PORTER.

P.S. Of St. Mary's, which is about seventy miles north of St. Augustine, I have no personal knowledge, but have been informed, on good authority, that its climate is nearly as good as that of St. Augustine, and its accommodations better.

Theological Seminary, Andover, October, 1830.

Saturday Morning, Oct. 3d.

DEAR SIR,

I send this the first moment I could find to prepare it. If you think proper to publish it, as your note intimates, I have no objection, especially as it may save me a particular answer to some scores of inquiries. In that view I return your own letter, as you may have no copy.

Yours, &c.

E. PORTER.

The following is an extract from a meteorological diary, kept at the hospital department of the United States' army, at St. Augustine made by Dr. Anderson.

The observations were made daily at 7 A. M., 2 P. M., and 9 P. M. The mean temperature is made from the general diary.

DIARY.

Months.	Highest.	Lowest.	Mean Temperature.			Winds.	Number of Fair days.
			7 A.M.	2 P.M.	9 P.M.		
1825.							
August,	94°	80°	82°	83°	85°	S. W.	19
September,	87	76	75	80	76	N. E.	14
October,	86	58	76	86	80	N. E.	22
November,	76	53	62	69	65	N. E.	20
December,	76	42	60	75	52	N. E.	26
1826.							
January,	68	44	52	55	54	N. E.	19
February,	77	52	60	79	65	N. E.	17
March,	80	62	66	71	70	S. E.	24
April,	84	60	72	85	83	S. W.	24
May,	82	74	77	80	67	S. W.	27
June,	88	80	81	81	81	N. E.	22
July,	92	80	80	86	83	N. E.	21
August,	90	76	81	84	80	N. E.	18
September,	89	73	77	78	80	N. E.	21
October,	83	61	70	96	64	S. E.	21
November,	80	52	60	64	70	N. W.	15
1827.							
April,	86	66	68	71	66	S. E.	21
May,	85	64	72	77	72	S. E.	20
June,	91	72	75	80	76	S. E.	23
July,	93	78	82	86	82	S. E.	14
August,	91	75	81	83	82	S. E.	25
September,	96	75	70	80	71	N. E.	16
October,	86	60	70	76	67	N. E.	23
November,	76	48	58	68	63	N. W.	21
December,	76	44	66	67	62	S. E.	21
1828.							
January,	83	46	63	70	66	S. E.	18
February,	84	52	67	70	61	S. E.	19
March,	82	50	52	63	61	S. E.	27
April,	84	50	66	72	58	N. E.	24
May,	90	71	74	76	74	S. E.	21
June,	80	74	79	81	80	S. E.	14
July,	90	76	68	75	71	S. E.	15
August,	87	77	80	84	95	S. E.	13
September,	85	70	77	82	79	S. E.	14
October,	80	60	69	75	69	N. E.	15
November,	81	53	60	69	64	S. E.	21
December,	78	61	60	70	64	S. E.	13
1829.							
January,	68	28	53	65	56	N. W.	24
February,	77	30	53	60	52	N. E.	13
March,	76	36	53	64	56	N. W.	20
April,	74	52	61	70	66	S. E.	27
May,	82	63	67	76	62	S. E.	9
June,	94	70	77	84	80	S. W.	18
July,	89	75	78	84	83	S. E.	14
August,	91	76	81	85	83	S. E.	23
September,	86	72	77	82	78	N. E.	15
1830.							
January,	68	46	56	61	59	N. E.	27
February,	76	46	57	63	58	N. E.	23
March,	80	50	62	68	65	S. W.	27

Scirrhous state of the Duodenum and Pancreas, producing complete Obstruction of the Gall and Pancreatic Ducts, and great Enlargement of the Gall Bladder—Jaundice, &c. By JOHN H. BAYNE, M. D. Maryland.—The subject of this case was a farmer, æt. about 50, of regular and industrious habits. He had been occasionally confined to bed for some years; his disease recurring worse during the autumnal season. On application to his family physician, he complained of great pain in the pit of the stomach, somewhat intermittent, occurring in the most violent paroxysms: lassitude; inaptitude to motion; intolerable itching of the surface; skin dry and husky; oppression about the præcordia; indigestion; flatulence; bowels always torpid, scarcely ever evacuated without the aid of aperient medicines or enemata; dejections scanty and clay-coloured; excrement destitute of smell. The skin and tunica conjunctiva of the deepest yellow. Vascular system perfectly tranquil, notwithstanding the patient suffered the severest paroxysms of pain. His appetite was most voracious and indomitable, but after taking food, the inconvenience became so great as to render him totally incapable of retaining the ingesta in his stomach. From the extraordinary muscular tenuity and flatness of the abdominal parietes, the aorta and lumbar vertebræ could be distinctly traced by the finger.

The particular treatment which was pursued by the various physicians who were consulted previous to myself, I did not learn. I understood, however, it was the concurrent opinion of all, from the symptoms which presented themselves, that biliary calculi, or some mechanical obstruction existed, which prevented the transmission of bile from the liver to the intestines. Under every plan of treatment which had been adopted, he dragged out a most miserable existence, until some time in July, when he expired.

For some weeks before his death he grew gradually darker, until he approximated a dark mulatto colour, or perhaps more nearly that of mahogany. From the unusual appearance of the case, his friends, after great importunity, permitted a post mortem examination, but not without the greatest restrictions.

Sectio cadaveris, in presence of the two Drs. Hamilton of Washington City.—Abdomen. Omentum reduced to a fimbriated membrane, with almost complete absorption of adipose matter. Stomach. Upper and middle portions tolerably healthy in appearance; somewhat enlarged and flaccid: but without any thing like bloody infiltration: as we approached the pyloric extremity it was found thickened and indurated. Duodenum was an inch and a half in thickness; hard and lobulated; presenting, when cut into, a condensed, radiated appearance, without the least vestige of laminæ. Pancreas. Right extremity very large, scirrhous, and adhering preternaturally to the duodenum, which, from their massiness and great state of disorganization, had entirely obliterated the calibers of the pancreatic and hepatic tubes, producing a regurgitation and accumulation of bile in the gall bladder and tubes. Liver. Infarcted and tubercular; vesica gallis, (distended with healthy bile,) measuring eight inches in length, and nine in circumference, with capacity sufficient to contain a pint of fluid. Intestines. Healthy: containing a few dark scybalæ.

Not having permission to prosecute our examination further, we were compelled to discontinue.

The voracity of appetite, which continued until a few days before his death; the extreme muscular emaciation; extensive disorganization of the pancreas, duodenum, and stomach, producing complete obstruction in the biliferous and pancreatic tubes; the mahogany colour of the patient, together with the immense size of the gall bladder, we think render it a case somewhat interesting and remarkable in character.

Prince George's County, Maryland, Sept. 20th, 1830.

Case of Imperforate hymen. By CHAS. S. J. GOODRICH, M. D.—Miss M. R. aged 20, applied to me about nine months since for advice. She never had menstruated, and until the age of 14 had enjoyed perfect health. Since then her health has been declining, and she has presented the usual symptoms of obstructed menstruation, such as emaciation, sallow complexion, cough and general nervous irritability, &c. Her mother informed me she had "tried a great many things to bring down her courses," from the suggestion of female friends, and had repeatedly used prescriptions of her physician. After she came under my care I prescribed the course of diet, exercise, and remedies usually adopted in these cases, but without effect. In the pelvic region there was some considerable fulness, which had been increasing gradually for the last year or two without pain, except occasionally some soreness in the lower part of the abdomen, with weakness and uneasiness in the back, &c. From delicacy I neglected an examination until I found no relief or mitigation of symptoms from various prescriptions and medicines, and then suggested to the mother my opinion, and urged the necessity of an examination per vaginam. With some reluctance I finally succeeded in obtaining the consent of mother and daughter. Quite low in the vagina was discovered a soft yielding tumour, obstructing the entire passage, containing fluid, and apparently covered by the hymen imperforate. The next day, after explaining to her the necessity of an operation for the evacuation of the fluid, and having calmed her fears and anxiety about the result, I obtained permission to introduce a sharp-pointed bistoury, covered with ribbon to within half an inch of its point. Guiding it by my finger, I carefully introduced it, and made an incision of perhaps half an inch through a very dense membrane from below upwards. Immediately on withdrawing the knife a thick, dark-coloured, tenacious, inodorous fluid escaped, and continued to discharge for two or three days when it entirely ceased. During this time she voided as near as could be ascertained about four pounds. The first and principal part of the discharge was devoid of smell, though the last was somewhat offensive. Six weeks from the operation, or about the first of August, she had a slight discharge from the vagina, preceded by irregular menstrual efforts. At this time, September 1st, her general health is better than it has been for some years, her cough has left her almost entirely, and though her health is feeble still is gradually improving, and has been for six or eight weeks. I expect she will yet enjoy perfect health. Her mind evidently sympathises with this change, as her feelings and actions evince.

On Oleum Terebinthinæ as a remedy for Salivation. By E. Geddings, M. D. Lecturer on Anatomy and Surgery, Charleston, S. C.—It has long been matter of regret, that the good effects of mercury are so far counterbalanced by the sufferings attendant upon its operation upon the constitution, as to deter many, in a measure, from using it, and to induce some to submit quietly to the sufferings of their malady, rather than incur the still greater sufferings inflicted by a mercurial salivation. It often happens, moreover, even under the most prudent and circumspect employment of mercury, that certain individuals, from peculiar idiosyncrasy, or some other cause, become severely salivated. It must then be confessed that a remedy calculated to mitigate the sufferings thus accidentally induced, is a desideratum, and that any thing which holds out the slightest promise of benefit is deserving of an impartial and candid trial. It is under these circumstances, that we venture to offer the results of our own experience upon this subject, trusting that the remedy which we are about to propose may prove as successful in the hands of others as it has in our own. For several years past, we had been completely baffled in all our efforts to relieve a mercurial salivation. We had tried all the usual remedies without any very striking results. Sulphur had always disappointed our expectations. Emetics had sometimes afforded relief, but they can only be employed in a few cases. Cold, recommended by some, is not always safe. Opium had only served to allay pain. The ordinary astringent gargles had not afforded much relief. Porter had occasionally succeeded. The Rhus glabrum recommended by Dr. Fahnestock we have never tried. It was not until the winter of 1828 and 29, that we became acquainted with the efficacy of Ol. Terebinth. in the treatment of this distressing affection. We were attending a young gentleman of the medical class, who became severely salivated from a small dose of calomel. A highly intelligent young gentleman, Mr. J. E. Pierson, at that time one of our pupils, now a respectable physician of Fairfield District, proposed the turpentine, which was accordingly employed, and afforded speedy relief. Since that time we have used it extensively in both hospital and private practice, with the most satisfactory results. It has also been much employed by several of our medical friends, whose testimony in its favour, we are happy to state, fully substantiates our good opinion. We usually direct two drachms of turpentine to eight ounces of gum arabic mucilage, with which the patient is required to gargle frequently in the course of the day. We have, however, in some cases, employed the undiluted turpentine with the same happy effects. It usually occasions, at first, considerable smarting, which, however, is of only temporary duration, and becomes less and less at each successive application. Indeed, in many cases, the smarting is succeeded in a short time by a soothing impression, similar to that which attends the use of the turpentine in cases of burns and scalds.

We will say nothing of the modus operandi of the medicine in cases of salivation, but will merely recommend a fair and impartial trial of it as a remedy for that distressing affection.

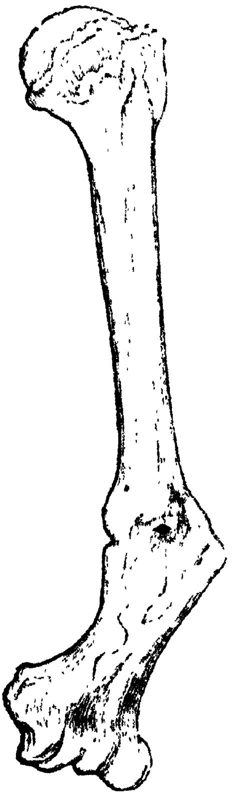
On the Treatment of Ununited Fractures with the Seton. By **Isaac Hays, M. D.**—In the surgical lectures of William Lawrence, Esq. of London, now in the course of publication in the *London Medical Gazette*, we find the treatment of ununited fractures dismissed in the following cavalier manner. "Another mode of proceeding in these ununited fractures," says Mr. Lawrence, "*has been* that of passing a seton between the broken ends of the bone, and leaving it there, in order to excite in the ends of the bones, and the neighbouring soft parts, that action which is *supposed* to be inefficient. After a certain degree of inflammation has been excited by the seton, it is then to be withdrawn, trusting the union to natural powers. *I believe it may be said that there are some* TWO OR THREE *instances recorded in which, after some weeks or months of confinement, with a good deal of pain and danger*, the union has been effected in this way; but in other cases the introduction of the seton has failed."

We confess ourselves at a loss how to notice this summary and contemptuous dismissal of a method of treating ununited fractures, and one which, contrasted with the *painful*, and sometimes *fatal* operation for which it was proposed as a substitute, it appears to us, can hardly be too highly extolled.

The apparent accuracy with which the lectures are given in the Gazette, seems to forbid our ascribing so material a misstatement to an error of the reporter—the high character Mr. Lawrence has hitherto sustained for fairness and candour, equally prohibits the imputation of intentional misrepresentation on his part, and yet it is impossible to suppose that Mr. L. who is distinguished for extensive erudition, should be ignorant of cases published in the Medico-Chirurgical Transactions of London, the Edinburgh Medical and Surgical Journal, the London Medical Repository, the Medico-Chirurgical Review, the London Medical and Physical Journal, the London Medical and Surgical Journal, the Dublin Hospital Reports, Charles Bell's Operative Surgery, and Cooper's Surgical Dictionary, in which no less than THIRTEEN different cases of ununited fractures *successfully treated by the seton* are related. Be the case, however, as it may, the statement has been put forth as coming from Mr. Lawrence, and until disavowed, subjects him to the charge of ignorance or want of candour; we therefore think we are performing an act of kindness to him, in calling his attention to this subject, that it may be explained; and at the same time as an act of justice to the eminent surgeon who devised the method of cure under consideration, we shall give a brief summary of such cases of ununited fracture successfully treated by the seton, as we find in the works in our private library, not having time at the present moment to have recourse to more extensive sources of information.

The use of the seton as a means of curing ununited fractures, was originally suggested, as is acknowledged, by Dr. P. S. Physick, of Philadelphia,[*] and first put in practice by him on the 18th of December, 1802. The subject of this case was a sailor twenty-eight years of age, admitted into the Pennsylvania Hospital in the preceding May, in consequence of having fractured his left arm above the elbow-joint a year previously, and the bones not having united, his arm was nearly useless. A seton needle was passed between the fractured ends of the bone; "*the patient suffered very little pain from the operation;*" "after a few days the inflammation, (*which was not greater than what is commonly excited by a similar operation through the flesh, in any other part,*) was succeeded by a moderate suppuration," and at the end of five months, the arm was as well and strong as it had ever been. The account of this case first appeared in the Medical Repository of New York, Vol. I. 2d Hexade, 1804, and was republished entire in the *Medico-Chirurgical Transactions of London*, Vol. V. 1819.

The subject of this case died in Philadelphia only a few months since, and we have his left humerus now before us. He was attended during his last illness, by our friend, Dr. J. Randolph, who, knowing him to be the person upon whom Dr. Physick had operated twenty-eight years ago for artificial joint, obtained leave to make a post mortem examination, and procured the humerus in question. Dr. Randolph has kindly lent us this valuable pathological specimen, and granted us permission to have a drawing of it made. The annexed sketch is an accurate representation of its present appearance. The bone is nearly straight, and at the place of fracture there is a considerable mass of bony matter, through the centre of which there is a hole[†] large enough to admit a small quill, which no doubt was made by the introduction of the seton; and of course shows the place through which it passed. A short time before his death the patient assured Dr. Randolph that his left arm was as strong as the other, and that he had not since the union of the fracture suffered any inconvenience from the accident.



Mr. B. C. Brodie has published in the fifth volume of the *Medico-Chirurgical Transactions of London*, a case of ununited fracture of the femur of a boy aged thirteen, in which he resorted to the seton. "After the operation," says Mr. Brodie, "there was a good deal of pain in the thigh, *which however subsided in a few hours. No considerable inflammation followed the introduction of the seton.*" The two ends of the bone became firmly consolidated by bony union.

In the volume of the Transactions just quoted, James Wardrop, Esq. also relates a case of ununited fracture of the thigh bone in which he employed the seton; but it was "not in this instance so *permanently successful* as in the case narrated by Dr. Physick." The ill health of the patient prevented its effecting a complete cure.

Josiah Stansfield, Esq. of Leeds, has recorded in the seventh volume of the *Medico-Chirurgical Transactions of London*, a case of ununited fracture of the os humeri in a stout healthy man aged forty-eight. The fracture had been produced on the 4th of December, 1814, and in July, 1815, when the patient was admitted into the Leed's Infirmary, "the arm continued in a useless state." The fracture was very oblique. The seton was introduced on the 28th of July. "On the following day the patient was in very great pain, and had a smart attack of fever, which induced me to take off the dressings, and apply a bread and milk poultice, adopting at the same time the antiphlogistic regimen. This plan was continued till the inflammation had subsided, and suppuration was completely established. During the first fortnight, the slightest motion of the arm gave him very acute pain;" but by the 16th of August it became comparatively easy, and no further inconvenience appears to have been suffered. On the third of November the patient "could carry his arm to the back of his head, his arm feeling as strong and useful as before the accident."

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[*] It is not a little extraordinary, that in the last edition of Cooper's Surgical Dictionary, *reprinted in New York*, and *edited by an American surgeon*, that Dr. Physick should be twice referred to, in the article on fractures, as Dr. Physick *of New York*! The editor surely cannot have read the article, or he would not have permitted so gross an error to be perpetuated.

[†] Imperfectly represented in the drawing.

In the volume of the Medico-Chirurgical Transactions just quoted, a "case of gunshot wound and fracture of the tibia, in which a seton was successfully employed in promoting a cure," is related by John Boggie, Esq.

John Browne, Esq. M. D. treated in the Meath Infirmary a case of ununited fracture of the tibia in a man aged sixty. The limb had been fractured on the 3d of August, 1825, and on the 5th of November, bony union not having taken place, the seton was resorted to. In the report of the 7th of November, it is said that "there had been *slight uneasiness* in the parts," and in that of the 17th of December, it is stated that the patient "had for a week experienced much irritation, pain, and interruption of rest; the openings were spongy, and covered with large soft granulations." Nothing more is said of any inconvenience from the remedy, and on the 19th of January, 1826, the "fracture was firmly united."

Mr. Henry Lyford had placed under his care in the Bath Hospital, a boy whose right os femoris had been fractured eleven months before, and so slight was the union that had taken place "that the disunited portions of bone could be made to form an obtuse angle, and that without producing the slightest pain or inconvenience." Mr. Lyford introduced a seton between the fractured ends of the bone on the 12th day after admission into the hospital. No inconvenience is noticed as having been experienced until the 13th day, when it is stated in the report, that "the patient had passed a very restless night, accompanied with frequent rigors, considerable pain in the thigh, which is much swollen." The following day "the irritative fever had much subsided;" "the pain in the thigh was much relieved," and at the expiration of six weeks after the operation, the patient was discharged cured. This case will be found in the *London Medical and Surgical Journal* for July, 1829.

Mr. Charles Bell, in the second edition of his Operative Surgery, after noticing an operation he had proposed for the cure of artificial joints, speaks of the use of the seton for that purpose in the following terms. "I am happy on this occasion of describing the method pursued by Dr. Physick of Philadelphia to revive ossific disposition. This is not like what I have written, a mere proposal; but an operation successfully performed, and happy in its result, as is the ingenuity shown in devising it." Mr. Bell then notices four cases in which Dr. Physick had employed the seton: the first, that of the sailor of whom we have already spoken; second, a case of fractured humerus, the result of which was not known to Mr. Bell; third, a case of ununited tibia, in which "Dr. Physick passed the seton nineteen months after the accident, and in three months the bony union was complete;" and fourth, an ununited fracture of the arm, in which the seton was completely successful.

Mr. Bell also alludes to two other cases, one an ununited fracture of the femur, in which a surgeon introduced a seton, but without effecting a cure; the seton, however, was removed much too early, having only been allowed to remain three weeks: lastly, that of a boy six years of age, who broke his leg three years before. In this case Mr. Bell says, "I have passed the seton, and expect that in due time the operation will be successful."

Dr. C. A. Weinhold, Professor of Clinical Surgery at the University of Halle, has published in the Journal der Practischen Heilkunde for May, 1826, three cases of ununited fractures successfully treated by him with the seton. Not having the Journal alluded to, we derive the following sketch of the cases from the *Edinburgh Medical and Surgical Journal* for April, 1827. The first case occurred in a coachman who fractured his left leg near the ankle; at the end of eight weeks a perfect false joint was formed. A seton was introduced, and a thoroughly complete cure was effected. The second instance was in a youth twenty years of age, whose thigh bone had been fractured when he was ten years of age, and had never united; a seton was introduced, and "on the sixteenth week the patient was dismissed completely cured." The third was a case of artificial joint of the thigh bone and which was cured by the seton. No notice is taken in the account of these cases, of any great pain or danger resulting from the operation.

Cooper, in his Surgical Dictionary, states that a case of ununited fracture of the lower jaw cured by the seton, is related in the *London Medical Repository* for August, 1823; not having the Journal to refer to, we cannot give any of the particulars of the case.

Dr. Dohldorf relates in the Report of the Medico-Surgical Institution of Madgeburgh, a case of ununited fracture of the thigh-bone, near its middle. A seton was introduced between the ends of the bone, which was followed by so considerable a degree of inflammation, that it was thought necessary to remove the seton. There was profuse suppuration, fistulous abscesses formed beneath the muscles, and the life of the patient was supposed to be in jeopardy. Whether these evils resulted from the seton, or from other causes, does not appear from the notice in the *Bulletin des Sciences Médicales*, from which we derive our knowledge of the case. However, complete union of the fracture was effected.

Mr. Cooper, in his Surgical Dictionary, states that a case of ununited fracture cured by Baron Percy with the seton, is related by Dr. Laroche, in a memoir published some years ago in Paris.

Dr. Physick, in 1822, employed the seton, with success, in an ununited fracture of the lower jaw, and an account of the case, written by the patient, will be found in the Philadelphia Journal of the Medical Sciences, Vol. V. The patient states that his lower jaw was fractured, March 20th, 1820, in two places, on the right side transversely, and on the left obliquely. The transverse fracture healed, but the other fracture remained ununited at the end of two years, which caused "great inconvenience from the pain occasioned by the motion of the fractured parts in the broken jaw, whenever I attempted to bite any substance as hard as a crust of bread. My bodily strength gradually decreased, as I had a very sickly appetite, and was rendered incapable of receiving proper nourishment. My frame being debilitated in this manner, I seriously felt the effects of changes in the weather, and every time I contracted a cold it settled in my jaw, and rendered the broken parts so sore, that for some days afterwards I was unable to eat any thing except spoon victuals, and from the slight hopes I entertained of ever recovering from this misfortune, I was rendered truly unhappy, and felt wretched, when compelled to enter into any of my usual avocations." Dr. Physick introduced a seton, and "at the expiration of eight weeks, the outside of the bone became very much inflamed, and continued so for three or four days, accompanied with very acute pain, after which the pain subsided, and the inflammation decreased." In the course of the eleventh week, union of the fragments had become consolidated, and the cure was soon completed.

Dr. Physick has likewise successfully employed the seton in other instances of ununited fractures; no details of which have, however, been made public, the utility of the remedy appearing to him so well established that no additional evidence seemed necessary, and he therefore preserved no records of the cases.

That the remedy has failed in some instances is certain, but what remedy is always successful, and the want of success in some instances is attributed by Dr. Physick to the improper mode in which the operation was performed, and in others to the seton not having been continued a sufficient length of time. Dr.

Physick recommends the operation to be performed with a very long seton needle, armed with a silk ribbon or French tape, this needle should be passed *through the integuments*, and between the ends of the bone: he considers this mode preferable to cutting down to the bone with a scalpel, as has been done by some surgeons. The seton ought to be left in the wound for four or five months, or even longer if necessary.

Professor Weinhold ascribes the imperfect success of Mr. Wardrop's case, and also that described by Mr Hutchinson in his Practical Observations on Surgery, to the imperfect manner of performing the operation. He thinks that the ordinary seton thread on the one hand excited too little reaction, and on the other promoted the tendency to caries, by admitting the external air to the bone; he therefore proposes to employ a conical or cuneiform seton, by which greater irritation is maintained than by the ordinary seton, while the entrance of air by the external wound is always prevented *.

Had we more extensive means of reference, there is reason to believe that more successful cases of artificial joint cured by the seton might be collected. A sufficient number have, however, been adduced, to prove that the expression of a vague belief that it may be said that some *two or three instances* are recorded in which, after some weeks or months of confinement, and a *good deal of pain and danger*, the union has been effected by the seton, is far from being justified by the history of the operation. In fact, the histories of the different operations for artificial joint show incontestibly, that the seton is infinitely less painful than any other—except perhaps pressure, as recommended by Mr Amesbury—and as often, if not more frequently effectual. The profession should then be disabused of any prejudices against it, which the remarks of Mr Lawrence may have created, and just credit awarded to the eminent and ingenious surgeon by whom the operation was devised and first executed. It is not the least of the many improvements for ameliorating the sufferings of mankind, for which the world are indebted to one who has long been the greatest ornament and pride of the profession in this country.

Professor Mott's case of Exsection of the Clavicle. (Extract of a letter from Dr. A. F. Vaché of New York to Dr. Hays)--You express a desire for a continuation of the case of exsection of the clavicle, or rather for a report of its result. It gives me much pleasure to state its successful termination, and the perfect health of the gentleman upon whom it was performed. About two months ago, while on an excursion of pleasure to New York, he called at Dr. Mott's and I examined his shoulder. He remarked that he continued to wear the mechanical contrivance until the anniversary of the performance of the operation, when he laid it aside, not finding it any longer necessary. On examination, I found that the small acromial portion of the clavicle, which had not been removed by the operation, had formed permanent adhesions with the surrounding parts, and maintained the shoulder in its natural position. He had perfect use of the arm in all its motions, and the cicatrix was all that appeared to indicate any operation ever having been performed.

New York, September 11.

Ligature of the Carotid for Anastomosing Aneurism in a child three months old.—In our fifth volume, page 255, we announced Dr. Mott's having performed this operation. The following extract from a letter recently received from our friend Dr. A. F. Vaché, of New York, gives further particulars of this interesting case. "You wish to be informed of the termination of the case of the infant whose carotid artery was tied for an aneurism by anastomosis, involving both orbits, the nose, and part of the forehead, and in whom it was intended to tie the other should the first not prove curative. After the operation the tumour evidently diminished and induced the belief that in time it would be removed altogether without taking off the circulation from the opposite side. Since then the little patient was lost sight of until yesterday (September 10th) when Dr. Mott heard of the residence of the parents and visited it. He informs me that he found the tumour diminished about one-third, and so much consolidated as to lead to the opinion of the possibility of extirpating it, should it hereafter be thought necessary. In every other respect the child was in perfect health."

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* Edinburgh Medical and Surgical Journal, Vol. XXVII.

Shampooing in Dyspepsia.—This Eastern remedy has excited no inconsiderable attention among dyspeptic invalids for the last few months, and bids fair to continue for some time longer, after which it will no doubt be laid aside among the lumber of forgotten infallibles, unless indeed the Faculty should enlist it into their service. Never was remedy offered with greater promise of performing wonders. It is not only to supersede the use of the white mustard seed, and the whole host of internal specifics, both popular and professional, but it is also to render nugatory the Abernethean plan of abstinence. The dyspeptic is henceforward to be allowed to eat whatever he chooses, and in any quantity. All he has to do is to follow up his gormandizing by a brisk shampooing of his stomach, and straightway that organ will perform its hitherto sluggish function with celerity. Are the bowels torpid? Let them be well kneaded, and *mirabile dictu!* they will in due time pass on their excrementitious contents *ad finem* without the aid either of blue pill or black draught. Indeed, so extravagant are the expectations raised by this remedy, that one might almost be tempted to believe that hereafter the liver will be rendered a useless organ: shampooing being the only exciter necessary for perfect digestion.

In the first instance this *infallible remedy* was offered to the public with the promise of money to be returned in case of no benefit; but it was found that the number, who were willing to receive the benefit and their money back again into the bargain, was so great, that the possessor of the grand secret now contents himself by referring to several respectable gentlemen, who are certainly unprejudiced judges in matters of this sort, inasmuch as they are not embarrassed by a knowledge of the nature of the digestive organs, or of their derangements. Were they aware of the hazard of employing indiscriminately such harsh means as shampooing the abdominal region in the various disorders of the stomach and its neighbouring organs, which pass in ordinary language under the general denomination of dyspepsia, they would shrink from the responsibility of giving currency to the suggestion of a person in no wise competent to appreciate the effects of his remedy on the system. A small proportion of these complaints depend doubtless on a sluggish action of the digestive tube, and in all such, shampooing scientifically directed, may be beneficially employed. On the other hand, it is equally clear, that this remedy is calculated to produce serious injury in very many cases of dyspepsia so called, in all cases arising from chronic inflammation of the stomach or intestinal canal, in hepatic derangements, and forms of indigestion induced sympathetically by chronic irritation of the brain, lungs, or heart. In the latter form of the disease the ill effects of the remedy would very soon become apparent and be laid aside; but it is especially in chronic inflammations of the stomach and intestines that we are to apprehend the worst consequences—perhaps even the conversion of the disease into a scirrhous or cancerous affection.

Finally, while we are willing to allow that shampooing may sometimes be advantageously employed, we feel ourselves called upon to expose its extravagant pretensions; as well as to inform practitioners what the grand secret is that is to relieve civilized society of one of its most tormenting ailments.

Ergot in Menorrhagia.—Dr. John Bellinger, of Charleston S. C., informs us that he has tried the ergot in one case of menorrhagia, as recommended by

Marshall Hall, and that the hæmorrhage was increased, and the sufferings of the patient greatly aggravated by the treatment.

Teale on Neuralgia.—This valuable little work has just been published by Messrs. Carey & Hart. It is incomparably the best Treatise on Neuralgic Diseases extant.

Abercrombie on Diseases of the Stomach and Bowels, has been recently republished by Messrs. Carey & Lea. The favourable review we have already given of this work in a preceding volume, renders it unnecessary for us to say any thing further here respecting its merits.

The Surgeon-Dentist's Anatomical and Physiological Manual.—We know of no work which contains in the same space as much interesting information respecting the anatomy and physiology of the teeth, as this manual of Mr. Waite's. It has been recently published by Messrs. Carey & Hart.

Southwood Smith's Treatise on Fever.—No work has been more lauded by the reviews than this Treatise on Fevers, by Southwood Smith. Dr. Johnson, the Editor of the Medico-Chirurgical Review says "it is the best we have ever perused on the subject of fever—and, in our conscience, we believe it is the best that ever flowed from the pen of physician in any age or in any country." It affords us pleasure to announce that it is in the press in this country, and will be published in a few days by Messrs. Carey & Lea. We hope to review it in our next number.

MEDICAL CONVENTION FOR REVISING THE PHARMACOPŒIA.

The Delegates to the National Medical Convention for revising the Pharmacopœia of the United States, was held at Washington, January 4th, 1830.

The convention was organized by the appointment of Lewis Condict, M. D. President, and Thomas Henderson, M. D. Secretary.

A committee, consisting of Drs. Wood, Lovell, Worthington, Miller, and Bache, were appointed to examine and revise the Pharmacopœia, and to submit such revised copy to a future meeting.

This committee, at the meeting of the Convention on the 7th of January, made the following report.—

"The committee appointed on the revision of the Pharmacopœia of the United States, beg leave to report, that they have examined a revised draught submitted to them by the delegates from Pennsylvania, with as much attention as their limited time will permit, and recommend it to the convention as the basis of a new edition of that work. As, however, it contains several important modifications, which require a more particular examination than your committee can possibly give them, they recommend that it be referred to a *committee of revision*, to be appointed from the different sections of the country; that the chairman of said committee be requested to open a correspondence with the several members, for the purpose of submitting the aforesaid draught to their examination, and of obtaining their remarks and observations thereon; that he be authorized and instructed to call a meeting of said committee at as early a period as practicable, to assemble in the city of Philadelphia, and that any three members shall constitute a quorum for the transaction of business; who, after a careful examination of the several communications that may be submitted to them, shall prepare for the press a revised edition of the Pharmacopœia, and make the necessary arrangements for its publication."

The report was adopted, and in order to carry its recommendations into effect, it was

Resolved, that the committee for the revision and publication of the Pharmacopœia of the United States shall consist of a chairman, and of two members from each of the following cities, viz. Boston, New York, Philadelphia, Baltimore, Washington, Charleston, Lexington, and Cincinnati; whereupon the following gentlemen were appointed.

Thos. T. Hewson, M. D. *Chairman.*—Jacob Bigelow, M. D. and John W. Webster, M. D. of Boston.—Alexander H. Stevens, M. D. and John Watts, M. D. of New York.—Geo. B. Wood, M. D. and Franklin Bache, M. D. of Philadelphia.—Samuel Baker, M. D. and Elisha De Butts, M. D. of Baltimore.—Thomas Henderson, M. D. and N. W. Worthington, M. D. of Washington.—John R. Trescott, M. D. and James Moultrie, M. D. of Charleston.—W. H. Richardson, M. D. and B. W. Dudley, M. D. of Lexington.—John Morehead, M. D. and J. Pierson, M. D. of Cincinnati.

The chairman of the committee of revision and publication, in compliance with the instructions of the convention, called a meeting of the committee in Philadelphia on the 11th of October, 1830, and subjoined is an account of their proceedings.

National Pharmacopœia.

The committee of revision and publication appointed by the National Convention at Washington in January last, met in the Hall of the College of Physicians at Philadelphia, October 11th, 1830.

The draught submitted to the committee by the Convention having been revised, and such alterations and additions adopted as occurred to the members present, or were suggested in communications from those who were unable to attend; the whole was referred for publication to a committee, consisting of Drs. Hewson, Bache, and Wood.

The following resolution was then adopted—

Resolved, That this committee feel, and hereby express deep regret that there is any difference of action between the New York and National Conventions; that the committee approve the efforts made by their Chairman to produce co-operation; and that the committee of publication be authorized to open a correspondence with those who are, or have been acting in New York, expressing a desire to harmonize in the publication of the contemplated work.

THOS. T. HEWSON, *Chairman.*

QUARTERLY
MEDICAL ADVERTISER.

IN consequence of the extended circulation of the AMERICAN JOURNAL OF THE MEDICAL SCIENCES, the Proprietors intend, in compliance with the wishes of many of their Friends, to increase the facilities for advertising, hitherto possessed by it. For this purpose, a Sheet of Advertisements will be affixed to the succeeding Numbers of the Journal. All Booksellers, Medical Gentlemen, and others desirous of taking advantage of this mode of announcement, will please address their Advertisements to CAREY & LEA, Philadelphia, by the 10th day of the month preceding that of the publication of the Journal, viz. on 10th July, 10th October, 10th January, and 10th April.

TERMS.

For one page - - - - - - - - -	Six dollars.
Half a page or less - - - - - - -	Three dollars.

Philadelphia, January 20, 1830.

LECTURES
ON
ANATOMY, PHYSIOLOGY, AND SURGERY.
Charleston, S. C.
BY
E. GEDDINGS, M. D.

THE subscriber will resume his Winter Course of Instruction on Anatomy, Physiology, and Surgery, early in November, to be continued until March, as follows:

1. Lectures on Descriptive, Surgical, and Pathological Anatomy, five times a week, at 4 o'clock, P. M. including the privilege of Dissections and Demonstrations - - - $10
2. Lectures on the Principles and Practice of Surgery, and *Surgical Operations*, five times a week, at 7 o'clock, P. M. - $10
   With Dissections and Demonstrations, as above, or admission to both courses - - - - $15
3. Course of Operative Surgery and Bandages, in which each Student will have an opportunity of repeating all the operations upon the subjects. To commence in February. - - $10

Since the conclusion of the last Course of Lectures, several arrangements have been made, calculated to add to the comforts and facilities of the Class. The courses of instruction will, moreover, be so modified as, it is conceived, will render them more extensively useful.

The study of Anatomy, to furnish useful results, must be prosecuted with constant reference to Physiology, Pathology, and Surgery. The Lectures, therefore, upon that subject, will embrace a careful description of the organization in its healthy and diseased state, as well as its relations with the principal Surgical operations.

The Lectures on Surgery will comprise a minute discussion of the various topics which fall within the range of that science. The several diseases will be considered with constant reference to Morbid and Surgical Anatomy, and the operations illustrated by a display of the structure and relations of the parts concerned. Every effort will, in short, be made to bring before the Class the whole science of Surgery, as it exists in its present improved condition.

For the prosecution of *Practical Anatomy* great facilities exist. The rooms are capacious, well ventilated, and supplied with all conveniencies requisite in the study of Anatomy. Daily attendance will be given, at suitable hours, for the purpose of making Anatomical, Surgical, and Pathological Demonstrations, and teaching the method of preparing and preserving Anatomical preparations.

Private pupils will be received, as heretofore, at the rate of $100 per annum; or $50 for the winter term, payable in advance. They will be allowed to attend all the Lectures and Demonstrations, the use of a private office, and a library containing upwards of a thousand volumes of select Medical works, among which is a valuable collection of Plates and Drawings; also specimens of the Materia Medica, Anatomical Preparations, and a sufficient Chemical Apparatus to perform most of the ordinary experiments in that Science. During the Summer, those who are desirous of studying Botany, will have an opportunity of making *Herborizations* once a week. Examinations will be made as often as requisite, upon all the branches of their studies.

E. GEDDINGS, M. D.

Charleston, September, 1830.

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Professor of Anatomy and Physiology in the Columbian College, D. C.
HARVEY LINDSLY, M. D.
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Among various highly satisfactory accounts of the value of the Buchu in diseases of the bladder, obstructions of urine, chronic gonorrhœa, gleets of long standing, &c. I will quote a few cases and remarks by Dr. Ephraim M'Dowell, a highly distinguished physician and member of the Royal College of Surgeons in Ireland, published in the Transactions of the King and Queen's College of Physicians.

A variety of remedies have been advised, says Dr. M'Dowell, for chronic inflammation of the bladder, &c. which, when neglected, extends to the ureters and kidneys, producing a train of severe local as well as constitutional symptoms. Its original cause frequently cannot be discovered in many cases; we will however find it frequently succeeding to mismanaged gonorrhœa, neglected retention of urine, diseases of the prostate glands, strictured urethra, or calculous affections.

In some cases, as for example, when it depends on diseases of the prostate gland, we can do little more than palliate urgent symptoms; in other instances much may be effected.

A variety of remedies have been advised for these diseases; most of them I have repeatedly tried with little or no effect, beyond that of being in some degree palliative. The Compound Buchu having been lately strongly recommended, I was induced to make trial of it, and my experiments have resulted in the most satisfactory manner, having succeeded in saving the most inveterate cases, in which I had no hopes of success. I will quote a few for example.

CASE I.

The first case in which I used it, was apparently a hopeless one, recommended to me by a medical friend in Dec. 1821. James Thompson, æt. ——, upwards of six years ill, emaciated, and greatly debilitated, lower extremities

ON THE EXTRACT OF BUCHU.

paralytic. When he passes his urine, it is generally either with great difficulty, from its being loaded with a large quantity of slimy, tenacious, and stringy matter, or else involuntarily. His bowels were habitually costive, appetite totally gone. He had been under the care of so many medical practitioners, without the least benefit, that I feared little could be done for him. I passed a bougie in the first instance, to ascertain the state of the urethra, which I found rather irritable. I also used several of the common remedies for irritable bladder with no effect, at the same time closely attending to the state of [illegible] stive organs; lastly, I gave the [illegible] ad Buchu which g[illegible] imme[illegible] ct. In six days after, I found his appetite and str[illegible] h impro[illegible] able [illegible] lk [illegible] mucus much diminished in quan[illegible] ble of re[illegible] ng h[illegible] and no longer passing it involun[illegible] He now [illegible] a medic[illegible] nearly the following —

"Instead of being disturbed every five minut[illegible] the ni[illegible] ful erections, or by the desire of making water, I can [illegible] some ho[illegible] at a time no involuntary passing of urine. I can walk stoutly [illegible] h my ro[illegible] and even up stairs without help; my appetite is excellent, th[illegible] tburn g[illegible] the sediment in the urine greatly diminished. I feel a stre[illegible] n my back and loins unknown to me for years." He continued to impr[illegible] a con[illegible] ble time, but being unable to obtain any more of the Buchu, [illegible] ome de[illegible] lay [illegible] his condition however infinitely improved, and a short further continuance [illegible] the Buchu would restore him to entire health.

CASE I[illegible].

Philip Dwyer, aged sixty-seven years, sallow complexion, emaciated, ill for three years; complains of severe pain in the pubic region, particularly before he passes water. Great irritability of bladder; passing water in small quantities every quarter or half hour during the night, during the day can occasionally retain it for two or three hours. Less irritability when using [illegible] h walking exercise; when sitting, is affected with a stinging or scaldin[illegible] nsation in the prostate region. Urine generally white or muddy. Frequ[illegible] passes a large quantity of slimy, pale yellow-coloured mucus, voided with [illegible] ficult [illegible] soon putrefying; is much relieved by its expulsion from the [illegible] r. Is g[illegible] debilitated, and has lost much weight. Tongue loaded with yellowish mucus. Thirst. No appetite. Bowels generally constipated. No enlargement of the prostate glands could be felt.

Previous History.—Never had gonorrhœa. Has been a temperate liver. The disease commenced three years ago, first with slowness and difficulty in passing water, which was followed by frequent micturition. He attended the Talbot dispensary for five months, and left town apparently cured. He relapsed, however, in a month, and returned to the dispensary, May 13th, 1822. He was ordered a pint of the aqua calcis daily, twenty drops of the muriated tincture of iron three times daily, an opium suppository (three grains) every night, and purgative pills to be taken occasionally.

May 24th. Up five times last night to pass water; slime in less quantity; can expel his urine with more force.

May 29th. Worse; up fifteen times last night. The slime has not been discharged for some days; since its stoppage great irritability of the bladder has existed. Prescribed the Buchu, and continued the use of muriated tincture of iron.

May 31st. Reports that he has been better for the last two nights than for two years previous. Passed a large quantity of slime yesterday, which came away readily: up but four times last night.

June 7th. Continues better.

June 9th. Great irritability of the bladder. A painful swelling in pubic region; no mucus discharged for some days. This relapse arose from not being

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ON THE EXTRACT OF BUCHU.

able to procure the Buchu during the last week. The Buchu repeated as before, also the muriated tincture of iron.

June 21st. Much better. The slime was discharged after taking the medicine twice, up but twice last night.

The Buchu continued as before.

July 5th. Continues mending.

August 4th. Called on me to say he continues well, and has been able to follow his ordinary occupation as a labourer for the last month, and considers himself radically cured.

CASE III.

Henderson Waters, a debilitated and emaciated man, aged thirty-one years, visited me, August 8th, 1832, with my friend Dr. Cumming; found him labouring under much fever. Urine dribbling almost constantly from him, or else passing it in the quantity of half an ounce every five minutes; the urine loaded with slime, lower extremities totally paralysed, the upper nearly so. His lower limbs rigid, and frequently jerked up under him by painful spasms; severe pain in the soles of his feet, much irritability of the rectum. The glans penis in a state of slough, from keeping it constantly immersed in the urinal. The last dorsal vertebra more prominent than usual, no pain caused by its forcible pressure. The usual remedies were applied by two eminent physicians who had been attending him without success or benefit.

June 8th. Put on the use of the Buchu as the last case.

August 10th. Can retain his urine for half an hour at a time: little or no pain in the bladder, strength and appetite improved. The sloughs detached from penis, sore healthy, a slight slough over the trochanter major, from pressure and debility, ordered nourishing diet, and to continue the Buchu.

August 20th. (Reported by Dr. Cumming.) In every respect better; can now retain his urine for two or three hours at a time: no uneasiness in the bladder. For some days past sitting up, looks greatly improved. Tongue, pulse, and bowels natural. Paralytic affections of lower extremities, as before.

August 30th. At his work as a watchmaker. Can retain urine for four or five hours, health good, limbs much stronger.

September 8th. Continues as last reported and is entirely recovered.

In dyspepsia it appears to be a valuable auxiliary to other remedies. I had an opportunity of meeting with a case of gravel, of the uric acid kind, in a sedentary and dyspeptic individual, the attack coming on whenever the digestive organs were deranged, and frequently lasting with much severity for three days, attended with violent pain, shooting in the course of the ureter to the groins, testicles, and anterior part of the thigh, much fever, restlessness, and irritability, any excess in drinking wine invariably produced an attack. He has been in the habit, for the last three years, of taking the aqua kali caustica whenever attacked, and usually continued it for a considerable time in quantities of one ounce daily. In a late paroxysm he took it along with the Buchu: a white precipitate in the urine in large quantities resulted; he then omitted the alkali and took the Buchu alone. He recovered rapidly; both the white and red precipitate ceased to recur, and he has had no attack of it since.

The above accounts of Dr. McDowell are entitled to the highest degree of confidence, being a man highly distinguished in the medical profession, and of large experience from the most extensive practice.

Full directions for dose and mode of administration accompany the medicine.

The above Preparation of the Buchu is Manufactured and Sold only by

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THE high price which the sulphate of quinine has always commanded, and the increasing demand which its character and reputation has constantly kept up, has been an inducement for imposition and fraud; and it is much to be regretted that this valuable article of the materia medica, like others of an expensive kind, has been mixed with foreign substances of inert character, for the base consideration of reducing the cost, and enhancing the profit on its sale, and all this at the expense of the health of the suffering patient, and the disappointment of the skilful practitioner, and not unfrequently to the injury of the general character and reputation of the genuine medicine. To guard against these evils and inconveniences, and to give a guarantee for the purity and genuineness of this salt, GEO. W. CARPENTER is pleased to inform the faculty that he has published the mode of testing its purity, and of detecting any foreign substances in it, which publication will accompany each vial; and his written signature will also be attached to the bottle. By this means, country physicians, and those residing abroad, can always depend, on application to the subscriber, to receive the genuine article, and which he will always supply at the lowest market price.

The Character and Properties of the Sulphate of Quinine, and the Method of Discovering Fraud and Adulteration in its Composition.

1st. The sulphate of quinine must be soluble in rectified alcohol at a moderate heat; if it contains sulphate of lime, soda, potash, or any other substance insoluble in alcohol, the adulteration will be easily detected.

2d. It is soluble in acidulated water, (say one drachm of sulphuric acid to an ounce of water, which will readily dissolve the quinine.) By this means, if there is any Stearine, or Acid Margaride, (substances prepared expressly for adulterating the article,) they will float on the surface.

3d. It should give, by sal ammoniac, a white precipitate, rather flaky, which is soluble in alcohol, and which, on being exposed to a gentle heat, will consume without leaving the least residuum.

4th. After having dissolved it in acidulated water, it can be decomposed by means of a little sal ammoniac, it must then be filtered and evaporated. If sugar has been introduced into it, it will be easily detected by the taste, or by fire, which will produce its peculiar odour.

5th. If a white substance, insoluble in cold water, be found in the sulphate of quinine, heat the mixture to about 170° of Fahrenheit. This will render the starch soluble, and its presence may be determined by the addition of an aqueous solution of iodine, which will immediately occasion a blue colour, and eventually a blue precipitate. The iodine should be added in very small quantities, and very slow, or the experiment will fail.

The above are the most simple and effectual means by which quinine can be examined to prove its purity, or to detect any adventitious substance.

⁂ Country merchants, physicians, and apothecaries, will be supplied with drugs, chemicals, medicines, glassware, surgical instruments, and every thing appertaining to the profession, on the most reasonable and accommodating terms, by application at

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TO READERS AND CORRESPONDENTS.

Communications have been received from Drs Wright, Hustis, Horton Young, Bronson, and Rankin •

The review of Goupil's Exposition des Principes de la Nouvelle Doctrine Medicale, has been crowded out of the present number it shall appear in our next

The following publications have been received —

Medico-Chirurgical Transactions, published by the Medical and Chirurgical Society of London Vol XVI. Pt. I. (From the Society.)

Pathological and Practical Researches on Diseases of the Brain and the Spinal Cord. By John Abercrombie, M. D &c. &c. First American from the Second London Edition Philadelphia, 1831. Carey & Lea. (From the Publishers)

A Treatise on Fever. By Southwood Smith, M D. Physician to the London Fever Hospital Philadelphia, 1830 Carey & Lea (From the Publishers.)

A Rational Exposition of the Physical Signs of the Diseases of the Lungs and Pleura; Illustrating their Pathology, and Facilitating their Diagnosis. By Charles J B. Williams, M D. Philadelphia, 1830. Carey & Lea (From the Publishers.)

Researches principally Relative to the Morbid Effects of Loss of Blood. By Marshall Hall, M. D, F R S. &c &c. Philadelphia, 1830. E. L. Carey & A. Hart. (From the Publishers.)

Elements of General Anatomy, or a Description of every kind of Organs composing the Human Body By P A Beclard, Professor of Anatomy of the Faculty of Medicine of Paris Translated from the French, with Notes. By Joseph Togno, M D. Philadelphia, 1830. Carey & Lea. (From the Publishers.)

The Practice of Medicine, according to the Principles of the Physiological Doctrine By J Coster, M D. Translated from the French Philadelphia. 1831 Carey & Lea (From the Publishers) •

A Practical Formulary of the Parisian Hospitals, exhibiting the Prescriptions employed by the Physicians and Surgeons of those Establishments, with Remarks, &c. By F. S Ratier, M D Translated from the French. New York, 1830 C. S. Francis. (From the Publisher.)

Manual of Therapeutics. By L. Martinet, D. M. P. Translated with Alterations and Additions. By Robert Norton, M. D. New York, 1830. C. S. Francis (From the Publisher.)

Elements of Chemistry, including the Recent Discoveries and Doctrines of the Science. By Edward Turner, M. D., F. R. S. &c. Third American from the Second London edition, with Notes and Emendations. By Franklin Bache, M D. &c. &c. (From the Editor.)

Introductory Lecture, delivered on the 15th of November, 1830. By E Geddings, M. D. Lecturer on Anatomy, Physiology, and Surgery. Charleston, S. C. Published by the Class. (From the Author.)

Transactions Médicales; Journal de Médicine Pratique et de Litterature Medicale, dans lequel sont Publiés les Actes de la Sociéte de Medecine de Paris Redigé, Par A. N. Gendrin, M. D. for July, August, September, and October, 1830. (In exchange.)

Bulletin des Sciences Medicales. May, June, July, 1830. (In exchange.)

Archives Générales de Medecine. July, August, September, October, 1830 (In exchange.)

Journal de Chimie Médicale. August, September, October, November, 1830 (In exchange.)

La Clinique, Annales de Medecine Universelle. Tom. III. No. 12, 13, 14 (In exchange.)

Gazette Médicale de Paris, Journal de Medecine et des Sciences Accessoires Tom. I. Nos. 34. (In exchange.)

Journal Universel des Sciences Medicales. June, July. (In exchange.)

Revue Medicale Francaise et Etrangere. August, September (In exchange.)

Annales de la Medecine Physiologique. July, August. (In exchange.)

Journal Universel et Hebdomadaire de Medecine et de Chirurgie Pratiques et des Institutions Medicales. Par MM. Begin, Berard, aine, Blandin, Boisseau, Bouillaud, Calmeil, A. Devergie, Harvey de Chegoin, Jolly, Londe, Melier, Regnault, Roche, Sanson, Trousseau, Velpeau. MM. Bouillaud et Boisseau reducteurs principaux. Tom. I. No. 1—7 (In exchange.)

Bibliothek for Læger. Redigeret af dens Medlem C. Otto, M. D. Kjobenhaven, 4 Nos. for 1830 (In exchange.)

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Journal der Chirurgie und Augen-Heilkunde, herausgegeben von C. F. von Graefe und Ph. von Walther. Band XIV. Heft. 2. (In exchange.)

Litterarische Annalen der Gesammten Heilkunde. Herausgegeben von Dr. J. F. C. Hecker. April, May, June, and July, 1830 (In exchange.)

Bibliothek der Practischen Heilkunde. Herausgegeben von Dr. C. W. Hufeland und Dr. E. Osann. Band LXII. 1829, and Band LXIII. Stuck. 1, 2, 3, 4, 5 1830. (In exchange.)

Journal der Practischen Heilkunde. Herausgegeben von Dr. C. W. Hufeland und Dr. E. Osann. Supplementheft, 1829. January, February, March, April, May, 1830. (In exchange.)

The Medico-Chirurgical Review, October, 1830. (In exchange.)

The London Medical Gazette, September. (In exchange.)

The London Medical and Surgical Journal, for September, October. (In exchange.)

The London Medical and Physical Journal, for August, September, October, November, December. (In exchange.)

The Edinburgh Medical and Surgical Journal, for October, 1830. (In exchange.)

The New York Medical Journal, conducted by Daniel L. M. Peixotto, M D., John R. Rhinelander, M. D., and John Jas. Graves, M. D. Vol. I. No. I. for November, 1830. (In exchange.)

The Boston Medical and Surgical Journal, Vol III. Nos. 37 to 48 inclusive. (In exchange.)

For the gratification of our contributors we present references to the works, received during the last three months, in which their communications are noticed.

Professor Chapman's Cases of Angina Pectoris are noticed in the New York Medical Journal, for Nov. 1830

Professor Mott will find his Case of Ligature of the Common Iliac noticed in the Medico-Chirurgical Transactions of London, Vol. XVI. and in Hufeland and Osann's Bibliothek, Vol LXII.—his Case of Excision of the Clavicle in the Bibliothek for Læger, Jan. 1829—his Case of Femoral Aneurism in Hufeland and Osann's Bibliothek, Vol. LXII —his Case of Immobility of the Lower Jaw in the Archives Generales, for July, and the Bull. des Sc. Med. for July, 1830—and his Case of Aneurism in which the Ligature was placed beyond the Tumour, is copied into the London Medical Gazette, for October last

Professor Gibson's Case of Axillary Aneurism is noticed in Hufeland and Osann's Bibliothek, Vol LXII

Professor Warren's communication on the Climate of St Augustine, Florida, is copied into the Boston Medical and Surgical Journal, for Dec. 21st.

Professor Jackson's Case of Amnesia is given in the Bibliothek for Læger, Sept. 1829—his Cases of Hæmatosis are copied into the Lond Med. and Phys. Journal, for September last—and his Case of Absence of the Pulse, in the London Med and Surg Journal, for September, 1830

Professor Sewall's communication on the Utility of Turpentine in Strangulated Hernia is noticed in the Bibliothek for Læger, for Oct. 1829—and his Case of Fungous Hæmatodes is copied into the London Med. and Surg. Journ for Dec. 1830

Professor Mussey's Case of Ligature of both Carotids is noticed in the Med Chirurg Review, for Oct. 1830

Professor Horner's Case of Ozena cured by Chloride of Lime is copied into the London Med. and Surg Journal, for December, 1830.

Professor Parsons's Essay on Malaria is noticed in the Boston Med. and Surg. Journal, for Dec. 1830.

Dr. Hayward's Case of Paruria Inops is noticed in the Archives Générales, for August, 1830.

Dr. Jackson's paper on the Use of Blisters in Threatened Abortion and Leucorrhœa is noticed in the Bibliothek for Læger, for June, 1829—and his communication on the Use of Rhubarb in Hæmorrhoids is noticed in the London Med. and Phys. Journal, for Dec. 1830.

Dr. Drake's Experiments on Cold Air in Pulmonary Affections are noticed in Hufeland and Osann's Bibliothek, for 1829

Dr. Wright's Observations on the Use of the Spider's Web in Delirium Tremens are copied into the London Med. & Phys. Journal, for Oct. 1830.

Dr. Simmons's Remarks on the Use of Pyroligneous Acid in Gangrene, &c. are noticed in the Revue Médicale, for August, 1830.

Dr. Geddings's Observations on Turpentine as a cure for Mercurial Salivation are noticed in the Boston Med. and Surg. Journal, for Dec. 28th, 1830.

Dr. Washington's Case of Gun-shot Wound is noticed in Hufeland and Osann's Bibliothek, for 1829.

Dr. Levert's Experiments on Metallic Ligatures are noticed in the Bibliothek for Læger, for Dec. 1829.

Dr. Henderson's Case of Disease of the Bones cured by Arsenic is noticed in the Bull. des Sc. Méd. for June, 1830.

Dr. Pennock's Experiments on Cupping Glasses in Poisoned Wounds are noticed in the Journal de Chimie Médicale, for Oct. 1830, and Hufeland and Osann's Bibliothek, for 1829

Dr. Toy's Case of Pregnancy is copied into the Archives Générales, for Oct 18[illegible]

Dr. Hendrie's Case of Ruptured Uterus is noticed in the London Med. and Phys. Journal, for Nov. 1830

Dr. White's Case of Ligature of Internal Iliac is copied into the Medico-Chirurgical Transactions, Vol. XVI. and is noticed in Hufeland and Osann's Bibliothek, for 1829

Dr. Rawson's Case of Perforation of the Stomach is copied into the London Med. and Phys. Journal, for Dec. 1830

Dr. Davis's Remarks on the Use of Arsenic in Large Doses for the cure of Intermittent Fever are copied into the London Med. and Surg. Journal, for December last.

Dr. Heiskell's Case of Extra-uterine Pregnancy is noticed in Hufeland and Osann's Bibliothek, for 1829

Authors of new medical books, desirous of having them reviewed or noticed in this Journal at the earliest opportunity, are invited to transmit to the *Editor* a copy as soon after publication as convenient, when they will receive prompt attention. Under ordinary circumstances, very considerable delay is caused by the circuitous routes through which they are received.

Papers intended for publication, should be sent, *free of expense*, as early after the appearance of the Journal as possible, in order to be in time for the ensuing number. Such communications should be addressed to "Carey & Lea, Philadelphia, for the Editor of the American Journal of the Medical Sciences," or may be deposited with Professor J. C. Warren, M. D. Boston—C. Drake, M. D. New York, or Professor S. H. Dickson, M. D. Charleston, S. C.

All letters on the *business* of the Journal to be addressed exclusively to the publishers

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2. Ueber den Werth des homöopathischen Heilverfahrens, von Dr. Gottlieb Ludwig Rau, Grossherzoglich Hessischem Hofrathe, und Physikus zu Lauterbach, 8vo. pp. 200. Heidelberg, 1824.
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XX. Dissertazioni et Altri Scritti Del Signor Dottore Giacomo Tommasini, Professore di clinica Medica, nella Pontificia Università di Bologna, relativi alla nuova dottrina medica Italiana, Raccolti in parte da molte opere periodiche e d'altronde, in parte inediti, con note dell' Editore. Tomo 1. Bologna, 1821, Tom. 2 & 3, 1823. Tom. 4, 1824. Tom. 5, 1826.
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XXV. Pathological and Practical Researches on Diseases of the Brain and the Spinal Cord. By John Abercrombie, M. D. Fellow of the Royal College of Physicians of Edinburgh, &c. First American, from the second Edinburgh edition, enlarged. Philadelphia, 1831, pp. 494, 8vo.

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ERRATA

Page 38, line 25 from top, after *different*, insert, and more penetrant
47, lines 4, 5, 6, 7, 8. This sentence should be a note
63, 27 and 31, for Beaumé, read Pese Savon
97, line 28, for 60°, read 80°.
102, 8, dele *greatest*.
192, 15, for flax, read toad-flax, and for *linare*, read *amaro*
271. 16. dele successful.

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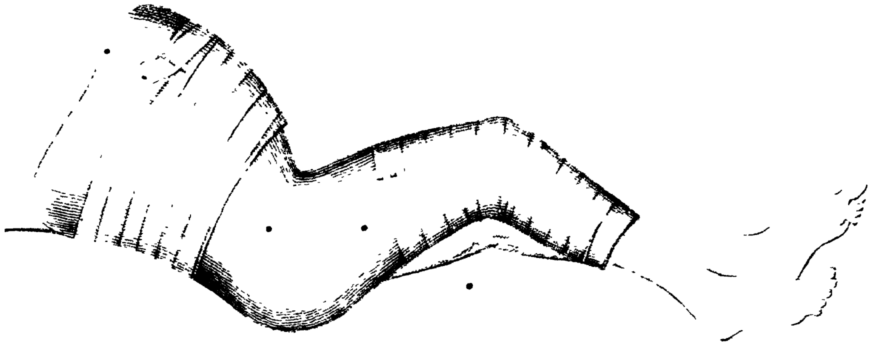

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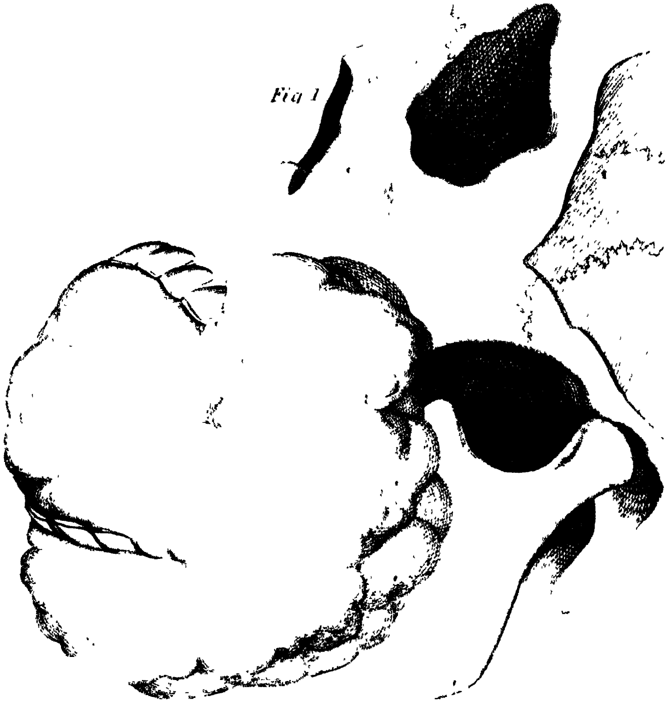
Fig 1



Drawing half the natural size

Fig 2

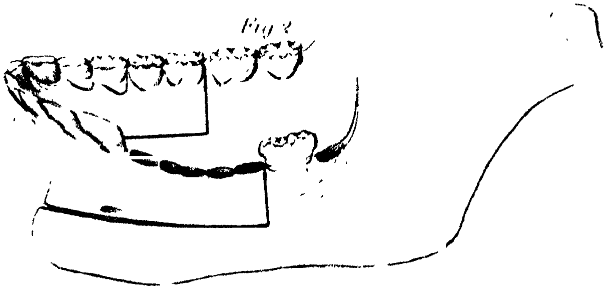


Fig. 3.

Drawn & Eng'd by J Drayton from a [illegible]

THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

ART. I. *Some Remarks on Morbus Coxarius, with an Account of* Dr. P. S. PHYSICK's *Method of Treating this Disease.* By J. RANDOLPH, M. D. Lecturer on Operative Surgery in the Philadelphia School of Medicine. [With a Plate.]

THE success which Professor PHYSICK has met with from his mode of treating hip disease, has been so highly encouraging, as to induce him to believe that he can effect a cure in all recent cases, and in many even of long standing, provided the joint be not disorganized.

Most persons acquainted with the nature and treatment of diseases of the joints, must be aware of the tediousness and uncertainty which attend the ordinary modes of treatment, and those who have witnessed successful results, must know that they have only been obtained by a steady perseverance in the use of the proper remedies.

It is extremely probable that a large portion of the profession in this country have received some intimation of Dr. Physick's method of treating morbus coxarius; but it is much to be feared that others, from ignorance of his precise plan, and of the extent to which he carries it, have in many instances employed it unsuccessfully.

It is unnecessary to enter into an examination of the various opinions which have been entertained respecting the nature of the complaint; it being sufficient for my purpose to observe, that the investigations of the best modern pathologists have led to the conclusion, that in morbus coxarius the cartilage of the hip joint is the part primarily affected, and that in ordinary cases, this is found to be in a state of ulceration. The profession are infinitely indebted to Mr. BRODIE for the valuable information he has communicated respecting the morbid anatomy of the part concerned in this disease; he has enjoyed opportunities of making dissections in the various stages of the complaint, and he states the following to be its progress:—

> "1st. Ulceration takes place in the cartilages: generally in that of the acetabulum first, and in that of the head of the femur afterwards; sometimes it begins in both at the same time. 2d. The ulceration extends to the bones, which become carious; the head of the femur is diminished in size, and the acetabulum is rendered deeper and wider. 3d. Abscess forms in the joint, which after some time makes its way by ulceration, through the synovial membranes and capsular ligament, into the thigh or nates, or even through the bottom of the acetabulum into the pelvis. 4th. In consequence of the abscess, the synovial membrane and capsular ligament become inflamed and thickened. The muscles are altered in structure, sinuses are formed in various parts, and at last all the soft parts are blended together into one confused mass, resembling the parietes of an ordinary abscess."

Mr. Brodie remarks, that in whatever period of the disease the examination is made, the cartilages are found in a state of ulceration: a considerable variation, however, is observed with respect to the alteration of structure which takes place in the adjacent soft parts and bones, these last being very seldom affected at an early period of the disorder. In some instances, the head of the thigh bone, together with a portion of its neck, are entirely destroyed by caries; whilst in others, the raised margin of the acetabulum is so completely removed that there only remains a carious surface of the several bones composing this cavity.

In general, the bones of the pelvis are much more extensively affected with caries than the thigh bone. This fact has been noticed by several writers, and particularly by Mr. FORD. In those cases in which the head of the femur is completely removed by caries, the limb becomes considerably shortened, in consequence of the muscles drawing the great trochanter upwards towards the spine of the ilium. The same shortening may take place, however, independently of the destruction of the head of the bone, in consequence of what has been called the spontaneous luxation of the os femoris, in which case the head of the femur is first pushed outwards by coagulable lymph and pus which occupy the cavity of the acetabulum, and it is then drawn upwards by the action of the muscles, and lodged on the dorsum of the ilium. Mr. Brodie states, that—

> "Ulceration of cartilage may be the consequence of inflammation of the cartilage itself, or of the bony surface to which it is connected; but in many instances there are no evident marks of inflammatory action having preceded it,

either in one part or the other, and the inflammation which afterwards takes place appears to be rather the attendant on, than the cause of, the ulcerative process."

With great deference to Mr. Brodie's opinion, I would remark, that inasmuch as it is impossible to furnish any satisfactory evidence that inflammatory action does not in all instances precede the ulcerative process, I think it is more rational to suppose that this latter condition is the consequence of the former, according to the almost universal analogy on this point which exists in the animal economy, notwithstanding, as is frequently the case in other tissues of the body, all traces of the inflammation may be lost at the time of the examination after death. It is undeniable, however, that the ulceration of the cartilages may take place without being attended with the secretion of pus. Dissections have proved this fact very completely; in some instances the disease has been found to have proceeded to a considerable extent without being accompanied with the formation of this fluid.

It must be regarded as an extremely fortunate circumstance for patients afflicted with coxalgia, that the formation of pus takes place so very slowly, experience having fully proved that the case is rendered much more tedious and uncertain by this occurrence. Mr. Brodie goes so far as to declare that he never knew an instance of an adult's recovering from this disease, after abscesses had formed. Children, however, frequently recover under these circumstances. Not long since I attended a boy in consultation with Dr. Physick, in whom a considerable abscess had formed in the acetabulum. The head of the thigh bone had been dislodged from its socket before we saw the case. The abscess burst externally, sinuses formed, from which there were copious discharges of purulent matter, and finally, the bottom of the acetabulum was destroyed, the abscess made its way into the pelvis, the ulceration extended through the coats of the rectum, and a portion of the purulent matter was discharged *per anum*, whilst a portion of the feces escaped through the openings in the hip. Notwithstanding all this, by a rigid perseverance in Dr. Physick's mode of treatment, the patient recovered with an anchylosed limb, and is now an active, healthy boy.

The various appellations which have been used for the purpose of designating this disease, such as the scrofulous caries of the hip joint, abscess of the hip joint, spontaneous luxation of the os femoris, and the scrofulous hip, I consider as objectionable, inasmuch as they only serve to point out a particular state of the affection. It is true that in the generality of cases the disease is met with in patients who possess a scrofulous diathesis, but it is equally certain that it attacks those who are entirely free from any such condition of the system. The exciting cause of the disease is most commonly supposed to be exposure to cold; it is probable however that it is often produced by external violence. On this account children should not be encouraged to jump from too great a height; the disease may possibly have been frequently excited by this cause. Several cases have also presented themselves, in which excessive exercise and falls upon the trochanter major appear to have produced the complaint.

Children are by far the most frequent sufferers from morbus coxarius; occasionally, however, it is met with at all periods of life. In general it attacks only one hip, sometimes it exists in both hips at the same time, being more fully developed in one than in the other, and in some rare instances after the disease has been cured in one hip, it makes its appearance in the opposite one. Cases have also occurred, in which, after the hip has been cured, the disease has attacked the vertebral column.

It is not my intention to enter into a minute or systematic consideration of the various symptoms which accompany morbus coxarius, I shall make a few remarks upon such of the more prominent symptoms merely as serve most clearly to designate the complaint. In the commencement of the attack, the diagnosis is often exceedingly difficult, and in order to ascertain the nature of the disease satisfactorily, it behoves the practitioner to examine its early symptoms in the most careful manner.

Most generally the first intimation which is given of a child's being affected with hip disease, is a slight degree of lameness in walking. In consequence of this being attended with but little pain in the commencement of the attack, it does not excite very serious apprehensions in the minds of the parents—they most probably attribute it to a fall, and defer applying for advice, in the hope it will get well of itself. Should they even send for a physician, if he be not experienced in cases of this kind, he will, it is most likely, adopt the same impressions: perhaps he will keep the patient at rest for a short time, the symptoms are relieved, the child gets up, and the real nature of the case is lost sight of for some time. Sooner or later, however, the pain and lameness increase so considerably that the patient is no longer able to walk about, except with the greatest difficulty. Nothing can be more irregular than the degree and situation of the pain. In some instances, the pain is felt altogether in the ankle, in others in the knee, and in others in the hip; in the greater number of cases it is situated in the knee. I am now attending a little girl affected with the complaint, who has been under my care for the last nine months, and during all that time I do not know that she has ever complained of pain in the hip, unless after I have made pressure near the joint; she has had several paroxysms of violent pain in the knee. Frequently the patient is roused from sleep by excruciating pain, which in general is not of long continuance, but comes on in paroxysms, in the intervals of which she is perfectly easy.

When the patient is permitted to walk about until the complaint becomes somewhat advanced, there is always more or less pain experienced in the neighbourhood of the hip joint; and in order to relieve this, he inclines the pelvis in such a manner as to give to the limb on the affected side, the appearance of being either preternaturally shortened, or elongated. I have met with several cases in which the length of the limb appeared so evidently increased, that I could not possibly satisfy myself with the naked eye, that the elongation was not real: by measuring the distance however in each limb, from the anterior superior spinous process of the ilium to the patella, it was found to be the same. The apparent elongation is owing to the pelvis being inclined to the affected side. In some instances it happens that the hip and knee of the affected side are bent in such a manner, that the toes only come in contact with the ground, whilst at the same time the heel is raised. In consequence of this, the patient in walking throws the weight of his body upon the sound limb, and inclines the pelvis to that side; this produces an apparent shortening of the limb; a condition which should be carefully distinguished from those in which I have described the real shortening to take place.

The flattened appearance of the nates which presents itself in the advanced stage of the disorder, has been very satisfactorily explained by the circumstance of the joint being deprived of its natural exercise, in consequence of which the glutei muscles become flabby and lose their usual convexity. In those cases where the acetabulum becomes filled up with coagulable lymph and matter, the breadth of the nates may become considerably increased, in consequence of the head of the os femoris being pushed outwards from its natural situation. This circumstance also will cause the nates to present a flattened appearance.

From the brief notice I have taken of the several symptoms which attend the ulceration of the cartilages of the hip joint, it will be readily perceived how exceedingly difficult it would be to form a correct judgment of the complaint from any individual symptom; they are, in fact, each of them to be met with in other affections of the hip. Mr. Brodie remarks, that the diagnosis "is to be founded not on a single symptom, but on the combination of symptoms, and on the history of their progress, so that no degree of experience can enable a surgeon to form his judgment correctly, without a careful investigation of the circumstances of the case before him."

Before commencing the treatment of a case of morbus coxarius, it is Dr. Physick's invariable practice to explain to the patient, or his friends, the chronic nature of the complaint, and the probable length of time which will be required for its cure, even under the most favourable circumstances. He also informs them, that they are not to expect much immediate benefit from the treatment, and that unless they are determined to persevere, it is useless for him to undertake the cure. By a candid exposition of this kind, the physician may frequently be spared the unpleasant reflections which patients are sometimes apt to make when their too sanguine anticipations are not realized.

It is of some importance that the bed upon which the patient is to be placed, should be constructed of proper materials; Dr. Physick always directs a hair mattress to be employed. The patient being confined to bed with a proper understanding that he is to continue there for a long time, and that rest in a horizontal position is absolutely necessary for a cure, Dr. Physick commences the treatment by the administration of a mercurial purge. In a patient of from six to ten years of age, he would give two or three grains of calomel, to be taken at bed time, and to be followed by a dose of castor oil the next morning, unless it should operate freely previously.

The patient having been kept still for a few days, the doctor next makes a very careful examination of the parts about the hip-joint. If he finds these to be inflamed and swollen, and tender to the touch, he directs the application of a sufficient number of leeches to take away, from a patient of the age I have mentioned, four or six ounces of blood. In general, he does not prescribe much reduction in the diet, unless the inflammation be very acute, and the patient suffer from fever; in most cases he advises a wholesome light diet. The next object which demands the attention of Dr. Physick, is the commencement of a course of steady and systematic purging. The experience which he has had in this complaint, has impressed him with the belief that this last measure is very superior to most of the remedies generally employed, such as emetics, fomentations, blisters, caustic issues, &c. He even views the seton in the groin, so strongly recommended by Mr. Brodie, as being much less efficacious than the establishment of a drain from the bowels by means of active, long-continued purging. It is not very material which of the cathartic remedies be employed for this purpose; it is proper, however, that the medicine should be changed occasionally, either as it may lose its effect, or as the patient may acquire a dislike to it. The cream of tartar and jalap may be considered as the most convenient and best cathartic. Dr. Physick has employed this remedy for a very long time in these cases, and he also recommended it highly, many years since, in his surgical lectures, for the treatment of caries of the spine. It should be administered every other day, in sufficient doses to procure several copious evacuations.

Having pursued the above treatment for a few weeks, and accustomed the patient to his confinement to bed, Dr. Physick next proceeds to the application of the remedy which he considers to be the most important and efficacious one that has ever been employed in the treatment of morbus coxarius. This consists in a splint properly carved so as to be adapted to the irregular size, shape, and position of the diseased hip joint, thigh, knee, and leg. It must also be carved so as to fit the principal part of the same side of the trunk. The whole must be long enough to extend from the middle of the side of the thorax, nearly as far down as the external malleolus, and it should be wide enough to extend nearly half way round the parts to which it is applied. In those cases in which the thigh is bent upon the pelvis, and the leg upon the thigh at the knee joint, the surgeon must by no means attempt to force the limb into a straight splint. On the contrary, the splint must be made angular at those parts so as to adapt itself to the exact position of the limb, however crooked it may be. After the patient has worn a splint of this shape for some time, the inflammation and swelling become so much relieved, that the limb can be placed in a much straighter position; and now it becomes necessary to have a second splint constructed which will adapt itself to the altered position of the parts. It seldom happens that more than two splints are required in the treatment; it has, however, occurred to Dr. Physick, to be obliged to have recourse to three and even four. The inside of the splint must be carefully wadded, in order to prevent it from excoriating the skin, and it must be retained in its proper situation by means of two rollers, one of which should be attached to the upper end of the splint, so as to secure this part to the thorax and hips, whilst the other is applied to the splint and limb from the ankle to the top of the thigh.

The length of time which may be required for the performance of a cure, varies in general from six months to two years, though the usual period is about twelve months. During all this time the splint should be kept steadily applied; the surgeon in fact should not remove it until some time after all the symptoms and appearances of the disease have entirely subsided. As soon as there is sufficient reason for believing that the disease is completely cured, the exercise of the limb may be resumed in the most cautious and gradual manner.

When the splint is first applied, the child in general is restless and uneasy, and frequently complains so much that it becomes necessary to remove it for a short time, in order to pacify him; after a few days, however, he gets completely accustomed to the splint, and experiences so much relief from pain, that he is extremely unwilling it should be taken off even for a short time.

It may be said that this treatment is not applicable to cases of morbus coxarius occurring in patients of a decidedly scrofulous constitution; so far from this being correct, however, in several instances complete cures have been effected in such patients.

In order to have the splint properly constructed, it is necessary to employ a regular carver. Mr. Rush, an ingenious workman of this city, is always resorted to by Dr. Physick for this purpose.

The drawing annexed to this paper will convey a tolerably correct idea of the form of the splint, and its mode of application. See Plate II.

It is scarcely necessary for me to add, that the treatment which I have just detailed, is particularly adapted to morbus coxarius prior to the period of suppuration. When abscesses form and burst, it generally becomes necessary to apply soft poultices, and in some instances to support the patient's strength by gentle stimulants and a nourishing diet. The splint, however, must be regarded as the important remedy in all cases in which the head of the femur is not either destroyed by caries or pushed out of its natural socket by the disease, and even then it favours a cure very considerably by promoting anchylosis.

I have now described the method of treatment which is pursued by Dr. Physick, for the cure of the ulceration of the cartilages of the hip-joint. It would be an easy matter to cite numerous cases in support of its efficacy; these however have increased to such an extent, as to render their publication almost a work of supererogation.*

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* I take great pleasure in publishing the following letter, received from my friend, Dr. B. H. Coates, and am exceedingly happy to have the sanction of his experience in favour of the splint.

My dear Doctor,—It gives me much pleasure to reply to your inquiry as to my experience in the use of carved splints in cases of morbus coxarius. I am sorry to be obliged to speak from memory alone; not having preserved records

Before concluding this paper, it may not be uninteresting to state, that Dr. Physick has applied the same plan of treatment to numerous affections of other joints with the most happy results. He has adapted the carved splint to the elbow, the knee, and the ankle, and has frequently found this remedy to succeed when all others have failed. My own experience in the treatment of diseases of the joints, has led me to the conclusion, that a state of absolute rest is to be regarded as the most important and efficacious remedial means which can be employed.

In the affection of the vertebral column, known by the name of caries of the spine, a disease which I believe to originate in the intervertebral cartilages, and to be in fact of the same nature as the ulceration of the cartilages of the hip-joint, most of the best surgeons both in Europe and this country, concur in recommending rest in a horizontal position, in conjunction with issues and purgatives, as constituting the most valuable and successful plan of treatment. I would take the liberty of suggesting whether an improvement might not be made upon this treatment, by having a splint carved of light

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of the cases; but if this be sufficient, I can give the result of some observations made not without care, and with a great desire to ascertain the truth.

During my residence in the Pennsylvania Hospital, as well as since, I have seen splints carved to fit the part, applied to a number of cases, some of which were in the ulcerated stage, and others less advanced. The splint was used in combination or alternation with blisters, issues, setons, confinement to bed, and purgatives administered every other day, and in some instances also with moderate exercise. It appeared to me that the splint was decidedly more successful than any one of these remedial means; and I incline to the opinion, that it is in many instances superior to any number of them combined. I do not think it was ever employed without a perceptible amelioration of the symptoms, within the space of one or two days. The patient frequently stated that he obtained, in the night following its application, sounder sleep than for many weeks or even months previously. The value of such palliation, either in allowing inflammation to subside, when this was practicable, or in husbanding the strength of the sufferer, and enabling him to struggle with more success against pain and exhaustion, is sufficiently obvious; and it is found of the greatest importance in practice. I have repeatedly seen cures effected, which, in my opinion, were mainly or entirely to be attributed to this remedy.

I would add that it is necessary that the splint be of carved wood, and in good condition; as the use of either wet pasteboard, moulded to the part, or of a splint cracked across the middle, in any direction, was always followed by failure in the object designed.

I am very respectfully and sincerely your friend,

B. H. COATES.

Dr. Randolph.

Philadelphia, Nov. 7, 1830.

wood, and made to fit the back, so as to afford firm support to the spine, and prevent the least possible motion of the vertebræ. If it be admitted that the application of a splint facilitates the cure of the ulceration of the cartilages of the hip-joint, why should it not also facilitate the cure of the ulceration of the intervertebral cartilages? I cannot help suspecting that such a splint would form a valuable auxiliary, not only in expediting the cure, but also in preventing deformity. I shall certainly make trial of the measure upon the first suitable opportunity.

I am well aware that this is recommending a practice totally at variance with one which has been lately employed in this city, and has received no inconsiderable share of support, and which consists in the application of machinery in such a manner as to permit the patient to walk about during the time of treatment. Far be it from me to wish to detract in the slightest degree from the just merits of the treatment alluded to; I must, however, be permitted to remark, that I cannot believe in its superiority; the principles which should regulate the treatment of the two diseases being in my opinion precisely the same.

It must be remembered that the foregoing observations have reference to the antero-posterior curvature of the spine, and not to the lateral curvature. This latter complaint depends upon a very different cause, and may be greatly relieved by the judicious employment of machinery. Mr. Pott, who condemns the use of machinery during the progressive stages of the true caries of the spine, is of opinion that when the patient has so far recovered that he can just walk, he may have recourse with propriety to some artificial support. He says, "adults find assistance in crutches, by laying hold of chairs, tables, &c. but the best and safest assistance for a child, is what is called a go-cart, of such a height as to reach under the arms, and so made as to enclose the whole body."

These diseases present a singular example of the differences which are met with in the experience of medical men in relation to the same affections. I have known the treatment both of morbus coxarius and caries of the vertebræ, according to the method above described, objected to by some on account of the debility and emaciation which is alleged to be produced by long confinement. I, on the contrary, can most conscientiously declare, that in every such case which has come under my notice, the result of the confinement has been an increase, not only in strength, but also in the general health of the patient.

Philadelphia, Nov. 1830.

ART. II. *Case of Axillary Aneurism, in which the Subclavian Artery was successfully secured in a Ligature.* By VALENTINE MOTT, M. D.

WILLIAM HINES, aged twenty-eight, of Smithville, Virginia, came to New York, August 24th, 1830, and became my patient.

The account he gave of his case was, "that about seven weeks ago he received a violent strain while carrying a canoe on hand-bars across the arms, which was followed by an extensive discoloration of the skin of the right arm, extending to the chest, and attended with considerable pain. It, however, yielded to the usual remedies in such cases. Three weeks subsequent to the accident he observed a swelling about the size of a pigeon's egg under the right arm, which had rapidly increased."

On examination, I found a tumour about the size of a goose egg, and decidedly an aneurism of the axillary artery. His general health being good, I directed him to keep quiet, to be bled, and to take some purgative medicines; and fixed on Monday, the 30th, for tying the subclavian artery.

At 11 o'clock, A. M. he was placed upon the table, with the shoulders elevated and inclined to the right side. An oblique incision was made, two inches in length, through the integuments and platisma myoides muscle, and corresponding to a middle line of the triangular interval formed on the inner side by the scalenus muscle, on the outer by the omo-hyoideus, and below by the clavicle. The cervical fascia was next divided to the extent of an inch, and with the forefinger and the handle of a knife, the adipose and cellular tissues were put aside, and the artery readily exposed as it passes from between the scaleni muscles. After denuding the artery a little of the filamentous tissue with a knife rounded at the point and cutting only at the extremity, a ligature was conveyed around it, from below upward, by the *American needle*, and the artery tied a little without the scalenic muscles.

No other ligature was required. The patient lost less than two tea-spoonfuls of blood. The operation lasted about fifteen minutes, and was performed, with the assistance of Drs. VACHE and HOSACK, in the presence of Drs. BARROW, KISSAM, ROGERS, and WILKES. The wound was closed by two stitches and adhesive straps; the arm was immediately wrapped in cotton wadding; no diminution of temperature took place.

8 P. M. Found the patient comfortable; says he has less pain in

the arm than before the operation; heat rather more than natural; a faint pulsation in the right radial artery; pulse 88.

31*st*, Morning. Passed a comfortable night after taking fifteen drops of the sol. sulph. morphine, which was given to allay the pain about the elbow, and which he considered rheumatic, having had more or less of it for some time previous to the operation. This pain was no doubt caused by the pressure of the tumour upon the brachial plexus. Pulse 70; skin natural; says that he feels very comfortable. —Evening. Complains of head-ache; directed a saline cathartic; pulse 90; skin pleasantly moist; pulsation in the right radial artery occasionally very distinct and regular; temperature of the right arm a little higher than that of the left.

September 1*st*. Pain of the arm obliged him to set up most of the night in an easy chair—after the operation of the salts, took again fifteen drops of the morphine, and slept quietly about five hours. Feels at present very comfortable; pulse 75; not the least evidence of febrile disturbance in any of his symptoms.

2*d*. Feels much more comfortable than yesterday; slept composedly all night; little or no pain in the arm; pulse 80; removed the wadding from the arm, and enveloped it in flannel, which keeps it very comfortable.

3*d*. Slept well all night after taking his dose of morphine, and feels very well to day; pulse 74; pulsation of the right radial more regular and distinct.

4*th* and 5*th*. Continues to improve.

6*th* and 7*th*. Every way comfortable; right radial pulsates regularly, though more feeble than the left.

9*th*. Dressed the wound and removed the stitches; mostly healed, except where the ligature from the artery passes out. Pain in the arm for some days past has not been felt; makes no complaint; pulse in the radial artery very distinct and regular with the actions of the heart.

11*th*. Dressed the wound, which looks remarkably well; every thing appears very favourable.

14*th*. On removing the dressings to day, the ligature came away: all promises well.

20*th*. Wound being just closed, permitted him to walk about the room, and to take his usual allowance of food; aneurismal tumour much diminished in size, and very hard.

27*th*. Left the city to day on his return by water to Virginia.

When I reflect on the disease for which this operation was performed, and upon the situation, importance and size of the vessel which was tied for its removal; it appears to me almost incredible that but twenty-seven days should have been required for its cure. That it should have succeeded is particularly grateful to my feelings, inasmuch as it was first successfully performed by an American surgeon,* and is an additional proof of the triumph of surgery over disease and death.

Park Place, Nov. 25*th*, 1830.

Art. III. *Observations on the Irritable Uterus, with Cases.* By William P. Dewees, M. D. Adjunct Professor of Midwifery in the University of Pennsylvania.

By the "irritable uterus," we are to understand, a peculiar and permanent sensibility of this organ, but more especially of its neck, which attacks the female about the middle period of life, or a little beyond it; rarely showing itself before the five-and-twentieth year, and perhaps still less frequently after the menstrual periods have passed. Dr. Gooch,† who has devoted an excellent chapter to this subject, and as far as we know, was the first author who treated of it, defines this disease to be "a painful and tender state of the uterus, neither attended by, nor tending to produce change in its structure." The latter part of this definition we do not think exactly correct, as we have always found some change in this part.

This morbid condition of the uterus shows itself by both general and local disturbances.

Of the General Symptoms.—The general symptoms are, an increased frequency, and a preternatural firmness of pulse.‡ This frequency is commonly augmented towards evening; the skin then becomes warmer, and the cheeks reddened, by a slight hectic blush. But the pulse is *always* more frequent and corded than natural, even in the absence of the exacerbation, but least so, early in the morning. We have never observed any thing like a regular rigor attend this complaint, though we have often heard the patient complain of chilliness, before an exacerbation of pain, especially if this were about to prove violent.

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* Dr. Post, of New York.

† In his work entitled "An Account of some of the most important Diseases peculiar to Women, by Robert Gooch, M. D."

‡ Dr. Gooch says, "the pulse is soft, and not much quicker than natural, but is easily quickened by the slightest emotion." p. 313.

The tongue is paler and whiter than natural, especially early in the morning; towards evening it reddens and becomes cleaner; more or less thirst attends, particularly in the after part of the day. The natural perceptions of the tongue are frequently perverted; so much so sometimes, as to lead the patient to the belief that there is a hair upon it; some say that the mouth feels as if there was dry flour in it; while others declare the sensation resembles that of grease, &c.

Head-ache almost always attends, and it is generally the back part of the head that suffers; this for the most part increases as the day advances, or as the pulse increases in force and frequency.

The skin is always dry while the disease remains in full force; and its general temperature is increased, if we except that of the hands and feet, which is much below the natural standard, especially the latter, we have rarely known the febrile exacerbation terminate in sweat.

The stomach is almost sure to suffer if the disease continue for a long time obstinate, though we have occasionally known it not to be implicated in the general mischief—but the latter circumstance may be looked upon rather as the exception to the rule, as, for the most part, the appetite is impaired or very capricious, and eventually dyspepsia becomes established. The bowels are either too much confined, or are urged to diarrhœa; and if an attempt be made to remove the former condition by purgative remedies, the latter is certain to follow, by which every local symptom is severely augmented; and thus the patient suffers almost alike, from either of these conditions.

The urine for the most part is sparing, high-coloured, strong-smelling, and throws down when at rest, a large deposit—or it is pale, abundant, and free from deposition; but when this occurs, we have reason to suspect the disease is complicated with a certain form of neuralgia. The urine is generally discharged with some difficulty, and even pain is felt along the course of the urethra. Occasionally, the urine is suppressed or retained, for many hours together, and is then voided with considerable suffering.

Local Symptoms.—Sometimes the patient represents the parts as being a little swelled, but this we believe is always transient. Walking, riding, or indeed any kind of exertion, is sure to be accompanied or followed by severe lancinating pains within the pelvic cavity, especially from near, or in the course of, the urethra, to about the centre of the sacrum; and when the severity of the pain has abated, it subsides into a permanent dull pain in the same direction, but more diffused.

More or less leucorrhœa pretty certainly attends; the colour of which varies almost in proportion to the degree of suffering; when this is not very intense, it is thin and nearly transparent, pretty abundant, and without odour; while, on the contrary, when the pain is very severe and permanent, the discharge is thick, purulent, and is, if strict regard be not paid to cleanliness, offensive.

The uterus is almost always lower in the vagina than natural, and sometimes, indeed not unfrequently, it is found prolapsed.* There is considerable heat in the vagina, and always, so far as we have observed, a more than ordinary degree of sensibility in its parietes. In this we differ from the respectable authority of Dr. Gooch, who says this tenderness is confined to the neck of the uterus.† The neck is almost always a little shortened, enlarged, and exquisitely sensible to the touch, and the os tincæ is rather more closed than natural. The pain which attends this complaint is always increased by an erect position, and it as certainly abates by a recumbent one. Pain is usually felt immediately behind the mons veneris and brim of the pelvis, especially its anterior portion.

The sensibility of the neck of the uterus is at times so exquisitely great, that the woman shrieks if it be rather rudely touched; nor does this pain cease, even for a very long time after it has been excited, especially at the lower part of the sacrum. Dr. Gooch tells us, that in a patient of his, it would remain for many hours with great severity. Indeed this tenderness is so great and so constant in many instances, that great suffering is experienced if the patient incautiously set herself down too suddenly, and particularly if upon a hard resisting seat; and the privileges of matrimony cannot be consummated without much suffering.

Besides these local inconveniences, there is a symptom which is almost constantly present, and which seems, according to our experience, in an especial manner to characterize the "irritable uterus," but which is not noticed by either Dr. GOOCH,‡ Dr. ADDISON,§ or M. GENEST;‖ this is a pulsating, throbbing, or fluttering sensation within the vagina or pelvic cavity. So far, we have never known this symptom wanting in this affection, though it differs very much in degree. In some few instances we have known it to interrupt sleep; but this is not the usual state of this symptom, though it is represented to be very disagreeable always; this sensation, however, is not constant; it often suffers abatement, and occasionally is absent—but when present, it marks the irritable uterus in an especial manner.

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* By prolapsus, we would wish to be understood, such a descent of the uterus, as causes it to rest upon the internal face of the perinæum.

† Dr. Gooch says, "the finger can be introduced into the vagina, and be pressed against its sides, without producing uneasiness." p. 312.

‡ Opera Citata.

§ Observations upon the Diseases of Females.

‖ Recherches sur l'Hysteralgie ou Néuralgie Uterine, et son Traitement. Gazette Med. de Paris, Sept. 1830.

Dr. Gooch and Dr. Addison, in their descriptions of the "irritable uterus," have added many symptoms that do not belong to this affection when simple and uncomplicated. To be convinced of this, it will be only necessary to compare the symptoms we have detailed above, with those enumerated by these gentlemen. Dr. A. lays down the following marks, as belonging to, or produced by, "uterine irritation." He declares, the most frequent symptoms of this condition, to be—

> "Irregular menstruation, the discharge being preceded or accompanied by pain in the back, loins, thighs, or in the region of the uterus itself, attended with forcing or bearing down; the discharge being in excess, either in point of mere quantity, or in continuance, or in recurrence; tenderness of the womb itself upon pressure made either externally or per vaginam; a tenderness so great as to interfere with the privileges of matrimony, and lastly, leucorrhœa. The most frequent symptoms, however, are, unquestionably, painful menstruation and leucorrhœal discharge. Such are the few, plain, simple indications of a state of uterus which is repeatedly overlooked, though productive of the most serious disturbance, both of the general health and of particular organs; disturbance which, when once produced, stamps a character upon the general and local ailments of the sufferer, strongly indicative, to the experienced man, of uterine irritation; a character which confirms in the belief that it is from such irritation that the evil originates, and that it is to correct the condition of the uterine system that his chief attention is to be directed." p. 12.

In addition to these symptoms, Dr. A. enumerates a long train of nervous symptoms as belonging to this affection—in a word, he describes a well-confirmed hysteria. Indeed, the description given by Dr. A. and that given by us, do not agree in a sufficient number of important points, to induce us to believe we are describing one and the same disease.

First. The greater part of the symptoms enumerated by Dr. A. are descriptive of simple dysmenorrhœa.

Second. He makes the causes of "uterine irritation" consist in "irregular menstruation;"* whereas, we are of opinion, that the aberrations of the menstrual discharge, if there be any, is owing to the inflamed, or irritable condition of the neck of the uterus.

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* He says, that "menstruation continues as usual, or perhaps a little more abundant, but generally they are less, and sometimes suppressed." From this we should be led to conclude, that dysmenorrhœa, or even irregularity, in his estimation, are the causes of this complaint. We are every way certain, that

Third. The initial symptoms of the "irritable uterus," are not those of nervous mobility, though these symptoms are almost sure to follow, if the disease persist for a considerable time.

Fourth. The symptoms laid down by Dr. A. are virtually the same as those to which the inflamed spine gives rise, and which affection, agreeably to Mr. TATE, produces the hysterical phenomena. These symptoms, however, do not necessarily belong to the "irritable uterus," but may be looked upon as purely nervous, and arise out of a morbid condition of some other part, or may be the *result* of an "*irritable uterus.*" Dr. A. thus cautions upon this point—

> "Whenever a female complains of a pain under the left breast, with or without palpitation or pulsation of the heart, of pain in the right hypochondrium; in the situation of the left or right colon; or acute pain generally over the whole belly, or in the region of the bladder or kidneys—always be upon your guard, and if upon inquiry you find few or many of the constitutional symptoms I have described, together with uterine irritation, as show by pain in the pelvis, in the loins, or in the thighs, before or during the flow of the catamenia; by too frequent or too profuse menstruation; or by leucorrhœal discharge; I say, when you find such an assemblage of symptoms and circumstances, your suspicions will amount to a high degree of probability that the complaint is not of an inflammatory nature." p. 31.

Now these very symptoms, we must repeat, Mr. Tate declares to belong to the inflamed spine. We must therefore say, that when these symptoms prevail, that neuralgia is either combined with, or is existing independently of the "irritable uterus;" for we are of opinion, that the "irritable uterus" may exist in its gravest form in a state of combination with neuralgia, or it may be present without this complication, and exist independently. We think this opinion is abundantly confirmed by the symptoms enumerated by Dr. A. as constituting, or as arising from, "uterine irritation;" but which, as we have just said, Mr. Tate claims for inflamed spine. Such as a pain seated under the left breast, or under the margin of the ribs of the same side; or pain under the margin of the ribs of the right side; pain in the course of the ascending and descending colon; pain af-

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we have seen the "irritable uterus" unaccompanied by dysmenorrhœa; and we are equally certain, that we have seen the latter many times extremely severe, without the former—these conditions appear to be rather the consequences than the cause of the "irritable uterus" in many instances; while in many others they are unattended by them.

fecting the whole abdomen; pain in the region of the stomach; and lastly, pain in the region of the kidneys; sometimes extending down the course of the ureters to the bladder. p. 22. Now, in our opinion, the first five of these symptoms do not belong to the pure, or idiopathic, "irritable uterus." First, because we have known them to be absent in several instances of exquisitely formed "irritable uterus;" 2d, because they are constantly present in hysteria, where the uterus may be in a perfectly healthy state—for we have witnessed them in women who bear healthy children; but we have never known conception to take place in women who labour under "irritable uterus." And the last enumerated sign belongs more properly to the carcinomatous, than to the "irritable uterus."

Fifth. Dr. A. makes very young females liable to the disease which he describes; now, we have seen the "irritable uterus" only in women who had arrived near, or had passed, the middle period of life.*

Diagnosis.—The "irritable uterus" may be distinguished from a neuralgic condition of this part, by the following important particulars. 1st. In neuralgia of the uterus there is an entire absence, at least as far as we have observed, of the general, or what we have termed the constitutional symptoms, especially the evening febrile movement. 2d. There is seldom, (nor is there ever necessarily,) a vaginal, or leucorrhœal discharge; if it be present, it may have been habitual, and have existed before the neuralgic attack. 3d. There is no preternatural heat in the vagina. 4th. Nor is the uterus so sensible to the touch, unless it be examined during the *painful continuance of the paroxysm*, and then perhaps it is even more exquisitely sensible than it is in the pure "irritable uterus;" besides, in neuralgia, the pain is less constant, but is more violent during the paroxysms, and these pretty constantly observe periodicity, but which the "irritable uterus" is free from. 5th. In neuralgia, a paroxysm may be suddenly induced by passions or emotions of the mind, which is never the case in the "irritable uterus," though the latter is susceptible of great, and occasional augmentation of pain, through the medium of the circulation, by errors in diet, or improper exposure.

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* Since this paper was written, I have been consulted by letter, in the case of a young lady, only eighteen, who, I have not the smallest doubt, is labouring under "irritable uterus," and forms an exception to the general rule of the period of life at which this disease may show itself. All the symptoms that mark this disease are present, even to the prolapsed state of the uterus This is a case of great interest, as it occurs in a young person, who in other respects enjoys a fair proportion of health, but which will and must very soon be destroyed, if this terrible affection be not speedily removed. There is in this young lady a strong scrofulous tendency, with some development.

We have recommended absolute rest; a milk and vegetable diet; the rhubarb pill; occasionally leeching or cupping; the iodine; and injections of the solution of the nitrate of silver, on the faith of its influence upon certain inflamed surfaces in other parts of the body.

The "irritable uterus" is however more frequently confounded with prolapsus uteri than with any other complaint, as the local symptoms of the latter are a miniature representation of the former. And as the womb is almost sure to descend more or less in the "irritable uterus," this precipitation has been supposed to be the cause of all the inconveniences experienced; and hence, the frequent failures of the pessary when it has been applied for the relief of the prolapsus. Nay, sometimes serious and permanent injury has been done by this instrument in these cases, without the practitioner being exactly aware why mischief should be caused by a machine that had been so often successful, in cases so apparently alike.

It is therefore a matter of much consequence, that the two affections should not be confounded; we would therefore suggest the observance of the following precautions, when an examination is about to be made per vaginam, for prolapsus uteri. First. Let the patient be placed upon her back with the knees drawn up. Second. Let the parts be well lubricated, that no pain may be excited by the introduction of the finger, lest a wrong conclusion be drawn from the complainings of the patient. Third. After the finger has possession of the vagina, a gentle search should be made for the neck of the uterus; and when found, the patient's attention should be solicited, to the degree of sensation produced by touching it; the portion of the body of the uterus immediately above the neck, and the sides of the vagina—inquire, if there be any extraordinary sensibility in either of these parts; and if there be, in which of the parts it resides; and if either of these parts be morbidly tender, the pessary must not be introduced, until this has been abated by suitable means. In this case, the patient will be labouring under "irritable uterus," and not a simple prolapsus. Besides, in the "irritable uterus," the prolapsus is not always permanent—but sometimes only so in the erect position of the body, as in standing.

The "irritable uterus" has also been confounded with carcinoma of this organ, when it has been about to throw off its indolent condition, and to commence the ulcerative process. But the "irritable uterus" is easily distinguished from the carcinoma, by the neck of the uterus in the latter still retaining the original marks of carcinoma; as a thickening of the whole of its substance; by its having a cartilaginous feel; by its being shorter; and the os tincæ being more open than natural; by tumours still occupying the neck, and pelvic portion of the body of the uterus; by a pretty abundant and sometimes constant discharge, of a serous fluid, which may be occasionally tinged with blood, and the almost entire filling up of the vagina, by the increased size of the uterus.

The "irritable uterus" has also been confounded with dysmenorrhœa, but from this functional derangement of the uterus it is easily distinguished. First. In dysmenorrhœa pain is only felt during the menstrual action; whereas, in the other, the suffering is more or less constant, though subject to occasional aggravation, and this of a severe kind, at other than the catamenial periods. Secondly. The "irritable uterus" is not necessarily attended by dysmenorrhœa, nor is dysmenorrhœa usually attended by this irritable condition of the uterus; for we have seen very many instances to the contrary.

Pathology.—We have already declared our belief, that this disease consists in a chronic, or sub-acute inflammation of perhaps all the tissues, that compose the neck of the uterus. The pathological condition of the womb, in this complaint, has, however, never been ascertained, by a post mortem examination, as it very seldom, or perhaps never, of itself destroys the patient. It were much to be desired, that an examination be made, should opportunity present—as we are of opinion, that more derangement of structure would be found in some cases, than appears to be allowed to exist by either Dr. Gooch or M. Genest, for we have met with several cases in which the size and form of the neck of the uterus was much altered from its natural condition. Indeed, the admission of Dr. G. and M. Genest would seem to declare the same thing; Dr. G. admits that "the neck of the uterus is *slightly* swollen," (p. 312,) though he denies a change in its structure, M. Genest declares the same thing; indeed, the latter seems but to have copied Dr. G. in his account of this disease. It is true, he has seen the disease, and appears to have been attentive to its phenomena; yet we would be rather disposed to question his accuracy, as he mentions, that this disease continued during the whole of a pregnancy, that terminated happily—now, as far as we have had opportunities of noticing this disease, (which have been many,) we have never known a single instance of impregnation, in a patient labouring under the "irritable uterus."

We admit, that in an unmixed, or idiopathic neuralgia of the uterus, that very little, if any derangement of structure takes place; from which circumstance, we are disposed to believe, that when this disturbed condition of the womb is met with, it betrays the neuralgic form of this disease.

Dr. Gooch will not admit the uterus to be in a state of chronic inflammation. He says, that, chronic inflammation, like the acute, is always "a disorganizing process;" but if we are not very much in error, a chronic inflammation may exist for an almost indefinite period, in some instances, without any *very manifest derangement* of a part; and that there is some derangement in the "irritable uterus," we are, from many observations, very certain—besides, there are present in this affection, all the common characters of inflammation—as heat, swelling, and pain; but whether there be unusual redness also, we are not prepared to determine.

We are therefore disposed to believe the conclusion of Dr. Gooch is rather hasty, and indeed his attempt to support his opinion is rather by analogies than by pathological observation. He says, "the disease which I am describing, resembles a state which other organs are subject to, and which, in them, is denominated irritation. Surgeons describe what they call an irritable tumour in the breast. It is exquisitely tender; an ungentle examination of the part leaves pain for hours; it is always in pain; but this is greatly increased every month, immediately before the menstrual period. Although apprehensions are entertained of cancer, it never terminates in disease of structure." "Mr. Brodie describes a similar state in the joints." It chiefly occurs amongst hysterical females; it is attended by pain; at first without any tumefaction; but the pain increases, and is attended with a puffy, diffused, but trifling swelling; the part is exceedingly tender: this assemblage of symptoms lasting a long time, and being often little relieved by remedies, occasions great anxiety, but "there never arise any ultimate bad consequences." "The disease," says Mr. Brodie, "appears to depend on a morbid condition of the nerves, and may be regarded as a local hysteric affection." "These painful states of the breast, and of the joints, appear to be similar to that which I have been describing in the uterus; similar in the kinds of constitutions which they attack; similar in pain; in exquisite tenderness; in resemblance to the commencement of organic disease; and in proving ultimately to be only diseases of function." p. 318.

Now, we would ask, if the condition of the parts here described, and that of the portion of the womb, implicated in the disease we are treating of, were identical, would it prove, that the symptoms to which they give rise do not depend upon a modified inflammation? Does the attempt to illustrate the condition of a part involved in disease, by adducing the inexplicable phenomena presented by diseases of other parts, (however strong their analogy may be,) throw any light upon its pathology? Is not the pathology of "the irritable breast," or "certain affections of the joints," as entirely unascertained, as the situation of the structure involved in the "irritable uterus?" Does any definite pathological condition of a part present itself to the mind, by saying, that the phenomena of the diseases offered as illustrations depend "upon a morbid condition of the nerves, and may be regarded as a local hysteric affection?" or in other words, is our knowledge of the pathology of the "irritable uterus" any way advanced by declaring, it is the same as in a "local hysteric affection?" Who has demonstrated the condition of either the brain or the nerves, which give rise to the phenomena of hysteria: of the glands of the mamma in "the irritable tumour of the breast," or of the joints, in the disease of them described by Mr. Brodie? Has it been proved, that the affection of a part called inflammation, (either acute or chronic,) has no agency in the production of the symptoms which characterize the several diseases just named? Certainly it has not.

Does Dr. Gooch's denial, that the "irritable uterus" depends upon a chronic inflammation of the neck, and perhaps a portion of the body of the womb, derive any support from Dr. Addison declaring the same thing? We think not.

In fact, whilst Dr. Gooch denies the presence of inflammation, he at the same time furnishes us, in the history of his cases, with sufficient evidence, that this condition of the parts concerned, really exists. Thus, in relating the history of the disease in question, in one of his patients, he says,

"In the lowest part of the abdomen, or a little lower even than that internally, she first felt a *sense of heat;* to this was speedily added *a sense of throbbing, then a sense of distention, as if there was a tumour within, which gradually expanded till it felt ready to burst,* then began spasms; these she described as shootings, or electric shocks, darting from the tumour up into the abdomen; they recurred every five or ten minutes, making her start with such violence as to shake the bed. I have been in the adjoining room when she has been in this state, and have perceived the shock; between the spasms, she felt what she called a convulsive pain. Nothing relieved these spasms, but *a small local bleeding;* she has used fomentations, simple and medicated, for many hours, hip baths, opium in draughts, and in injections, without relief; but as soon as four or six leeches were applied, and had drawn blood, the spasms, distention, throbbing and heat, speedily subsided, leaving a dull permanent uneasiness. The uterus was so tender, that the examination of it was torture, and left severe suffering for hours."* p. 335.

Need better proof be given of the inflammatory nature of the irritable uterus than the treatment of this case. Certain sensations of spasms accompanied this complaint; the sensations are described as consisting of *local heat, throbbing, and expansion, to a feeling like bursting;* the spasms as shooting or electric shocks, darting from the uterus up into the abdomen, which we are informed neither opium nor other means would appease, though persisted in for hours, yet were "*instantly relieved by four or six leeches!*"

Causes.—The remote causes of this very tedious and painful affection are involved in great obscurity—indeed, it may be questioned, whether any satisfactory remote or predisposing cause has ever been assigned, though we are in possession of a number of the exciting. These consist chiefly in severe fatigue, or other bodily exertion, as it almost always shows itself, after this has taken place, where predisposition has existed. Dr. Gooch says—

> "In one patient it came on after an enormous walk during a menstrual period: in another, it was occasioned by the patient's going a shooting with her husband, not many days after an abortion; in a third, it came on after standing for several hours many successive nights at concerts and parties: in a fourth, it originated in a journey in a rough carriage over the paved roads of France: in a fifth it was attributed either to cold or an astringent lotion, by which a profuse lochia was suddenly stopped, followed by intense pain in the uterus; in a sixth, it occurred soon after, and apparently in consequence of matrimony." p. 314.

It is evident, that the causes here enumerated, were only exciting causes; in none do we discover the predisposing, if we except the instance of abortion. It is more than probable, that this effort of the uterus may be one of the common predisposing causes of the "irritable uterus;" we at least can say, that three of the severest cases we have ever met with were preceded by abortion. But if abortion be admitted as the predisponent, it must also be granted that there may be many other causes, as we witness the "irritable uterus," in the unmarried, and in the widowed female, where abortion has had no agency.

Dr. Gooch says, his "patients had previously manifested signs of predisposition to it; they were all sensitive in body and mind, many of them had been previously subject to the ordinary forms of painful menstruation." He then adds, with a view, we presume of conveying some idea of the pathological condition of the uterus, that "the disease seemed to consist in a state of the uterus similar to that of painful menstruation, only permanent instead of occasional." p. 315.

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* We have never met with such an exquisite degree of sensibility in the *genuine uncomplicated irritable uterus*, as is here spoken of: where this has existed, to the extent described by Dr. Gooch, we have always had reason to suspect neuralgia to be added.

Upon these observations, we beg leave to offer a few remarks, that our experience in the affection under consideration has suggested. First. It by no means accords with our observations, that those who are "sensitive in body and mind," are more obnoxious to the "irritable uterus" than those of an opposite temperament—for we have seen this disease in its most aggravated form in the hale and robust, and especially such as were of the sanguine temperament. Secondly. That no analogy exists between that state of the uterus which gives rise to dysmenorrhœa, and that in which consists the "irritable uterus." For dysmenorrhœa is owing to a certain pathological condition of the *internal or secreting surface* of the uterine cavity: whereas, in the "irritable uterus," some change has been produced in the *parenchyma* composing the neck of this organ, and to which the disease is confined, agreeably to Dr. Gooch's own showing. Thirdly. As we do not know in what manner the inner lining of the body and fundus of the uterus is affected, to produce painful menstruation, so we cannot be enlightened in regard of the pathological condition of the neck, while labouring under the condition we are treating of. Fourthly. In dysmenorrhœa, the *pain* that accompanies the secretion of the menstrual blood, is not caused by any particular condition of the secreting organ, abstractedly considered, but to the changes wrought upon this fluid itself, during its elimination, causing it to remain within the uterine cavity, until it becomes, to all intents and purposes, a foreign body, and requiring the aid of uterine contraction to expel it—hence the pain of dysmenorrhœa, and consequently, between it, and that attendant upon the "irritable uterus," there is not the slightest resemblance in either kind or cause. Fifthly. Were there the strongest resemblance between the pathological condition of the internal surface of the uterine cavity, and that of the neck of the uterus, in the two affections under consideration, we should not profit from the analogy, as Dr. G. has not pointed out the condition of the former, that we might benefit from its resemblance to the latter.

Dr. Gooch insists that the "irritable uterus" is "a disease of function, and not of structure." p. 316. We would ask of what function? For Dr. G. admits that the menses continue to be discharged, though not in the most healthy manner; but we have endeavoured to show, that there is no necessary connexion between the discharge and the disease in question—for we have seen them, as we have observed before, altogether independent of each other. And, if it be not the catamenial function to which he alludes, we are altogether at a loss to what other to assign it.

Treatment.—Would it were in our power to say, that the treatment of the "irritable uterus," were as well understood, and as void of difficulty and uncertainty, as its obstinacy and severity renders desirable: for if we are candid, we must honestly confess, that the contrary of this is nearer the truth. This difficulty, however, does not arise so much from the indomitable nature of the disease, as from the length of time required to overcome it, and the privations to which the woman must submit who looks forward to its cure. Patience becomes exhausted, and confidence in the efficacy of remedies is too quickly destroyed; for relief is not only *always tardy,* but is too often uncertain, especially with those whose circumstances and avocations will not permit them to fulfil any plan, however judiciously laid down, or however important its adoption may be to their welfare.

We have just declared, that relief in this disease is always tardy; for however judiciously remedies may be devised, or however faithfully they may be applied, they are far from being speedy in their effects; in this opinion we do not stand alone: for it is the declaration of all the authorities we have quoted above, and but too certainly confirmed by our own experience: months, nay years, are sometimes required to accomplish a cure; and if this be effected even after a very long trial of means, the woman may felicitate herself that she has been able to procure health, even at so great a price.

In no disease does recovery so much depend upon the conduct of the patient herself, as in the "irritable uterus." The patient must make up her mind to a long and irksome confinement to bed; she must consent to perhaps the frequent use of external applications and internal remedies, and submit to a system of diet or abstinence that will not bear infraction with impunity, if she expect to recover from this painful, wayward, and perplexing affection. All this should be fairly and candidly stated, and the patient's mind should be duly impressed with the absolute necessity of perseverance, and of the penalties that will await neglect or that will follow infringement.

On the part of the practitioner, much caution, as well as prudence is required, that no ill-founded hopes may be raised, or that the patient may not be unnecessarily sunk to despondency. He should not make a false estimate of the persevering nature of the disease, from its apparent mildness, at the moment of its investigation; nor be too suddenly elated, at the seeming success of his plan; for the symptoms of the "irritable uterus" are not uniformly severe, or constantly obstinate, yet there is perhaps no disease of the female system more wayward in its intensity, nor more liable to recurrence, from either neglect or imprudence. He should be well aware of a truth, ved by multiplied experience—that no affection brooks trifling with so bad a grace as the "irritable uterus:" and that all departures from prescribed rules, is almost sure to be followed by penalties, much beyond the seeming importance of the trespass.

But notwithstanding the unyielding nature of the disease of which we are treating, much may be done towards its relief, if we cannot always promise its removal; and we are rather disposed to believe, that the difficulty of its management arises very often from the impatience, the imprudence, or the circumstances of the patient, rather than from the insurmountable nature of the disease itself. The first prevents the best application of the remedies; the second may defeat their best operation: and the third will perhaps interrupt their due employment. Having thus pointed out some of the difficulties inseperable from the management of this disease, and suggested certain cautions, that must never be lost sight of during its treatment, we will now proceed to detail all that experience has hitherto suggested for its relief.

The therapeutical means will consist, first, of rest; second, of bleeding, both general and local: third, of purging: fourth, of blistering, or of the employment of rubefacients; fifth, of narcotics; sixth, of injections per vaginam; seventh, of regimen; eighth, of the application of the pessary; and lastly, of tonics.

Of Rest.—A steady and persevering repose of body is a sine-qua-non in the treatment of a confirmed "irritable uterus." By rest we are to understand almost absolute quiet in a horizontal position. The patient may make her election as regards the substance on which she is to repose; it may be a bed, a mattrass, a couch or sofa; or she may occasionally vary either of these, provided these changes are neither made too often, nor too suddenly, nor at the expense of the patient's own exertions. The patient, for instance, may be carefully removed from either her bed or her mattrass, to a couch or sofa, and this daily, if she choose this change, but she must preserve the horizontal position under all circumstances. She must not sit up even in the bed, or on the mattrass or sofa, even for a short time, as this slight indulgence is almost sure to be followed by an increase of pain, or other inconvenience; à fortiori, she must not be permitted either to stand for any time upon her feet, or to walk.

Nothing shows the extreme sensibility of the uterus, (or rather a portion of it,) more decidedly, than that augmentation of pain, which almost instantly takes place from an erect, or even a semi-erect position, and which obliges the woman almost instinctively to return to a horizontal one. All her unpleasant symptoms are suddenly increased; especially the throbbing sensation, which we have declared above, so particularly characterizes this disease. This increase of pain most probably arises from two causes: first, from the uterus being obliged to sustain much of the weight of the abdominal viscera; and second, this position retards the return of blood from these parts.

At first, the confinement to bed is extremely irksome; but the patient should be encouraged to perseverance, by the assurance that this unpleasant sensation will wear off in a short time; and that she will not only become reconciled to the horizontal position, but will absolutely covet it, from the immediate and certain relief she will experience by returning to it after having sat up for a few minutes: or sometimes from even attempting it: the cause of this increase of pain we have endeavoured to explain above.

Of Bleeding.—First, we shall say a few words upon the occasional necessity of bleeding from the arm or foot. We would employ general bleeding but under two circumstances of the system—first, where the circulation is vigorous: the pulse tense or chorded: where there is much pain, and especially in the abdomen, accompanied by cough, or head-ache: in such cases we would abstract blood from the arm, to an amount that would afford relief even during its flow; did this require but eight or ten ounces, or a much larger quantity. For we have uniformly found, that the proper abstraction of blood from the system at large in the beginning of our treatment, was sure to be followed by advantages that could be procured in no other way—besides, if we draw blood in sufficient quantity at first from the arm, we need rarely repeat this operation; while at the same time its abstraction gives a more decided efficacy to other remedial means. Second, should the symptoms enumerated above be attended with a sparing menstrual discharge, we would abstract eight or ten ounces of blood from the foot, and this should be repeated five or six days before the next menstrual period, if the first has not succeeded.

But the "irritable uterus" will require the abstraction of blood from parts near the seat of the affection, and this again and again—the parts hitherto selected for this purpose, have been the sacrum, or the abdomen: but multiplied experience has convinced me, that as much advantage, to say the least, but we really think much more, has followed, when the blood has been drawn from the inner part of the thighs, three or four inches below the vulva: it may be drawn from one, or both thighs at the same time, by either cupping or leeching, and should be repeated every four weeks, a few days before the menstrual period, until pain, &c. are much abated: or until the patient can bear to be placed upon her feet, or even walk, without ich inconvenience or discomforture. Four or five ounces may be wn at each time.

In judging, however, of this latter circumstance, it must be kept in view, that the effects of long confinement in a horizontal position be not mistaken for the consequences of the change of position upon the affected parts—we should therefore inquire into the nature of the existing feelings, and compare them, both in degree, and in their nature, with those that really belong to the disease. To aid us therefore in forming a correct judgment upon this important point, we should, from time to time, make a careful examination per vaginam, with a view to determine the existing degree of sensibility in the neck of the uterus, and the several portions of the vagina. By doing this, we shall be able to determine the exact impression we are making upon the disease; and consequently, thereby ascertain the extent of necessity for perseverance. In making this estimate, we must never fail to take into consideration the state or degree of the "throbbing sensation," we have mentioned as particularly belonging to the disease; for by this very much may be learnt—for, if this feeling do not diminish with the sensibility, we may be certain that the affection has only made a truce, but has not retrograded; while on the other hand, we may be assured, that in proportion to the abatement of this unpleasant feeling, is the abatement of the disease itself.

Purging.—There is no one of the remedies proper in this disease so difficult to manage as purging—for there is no doing with or without it, as the bowels in this complaint are always either constipated, or too easily made free, and either condition is sure to aggravate the suffering; in this opinion I am happy to be supported by the experience of Dr. Gooch. But, notwithstanding these difficulties, it is every way important that the bowels should be moved once a day: neither less nor more. And for this purpose nothing answers better than the simple rhubarb pill.

Blistering and Rubefacients.—We are much at a loss to determine the exact value of blistering in the "irritable uterus," as it has in some instances we have thought proved useful, while in others, we have feared it had been mischievous; on the whole, therefore, we are distrustful of this remedy. But not so of rubefacients, or vesicating with the tartar emetic ointment. We have uniformly found the mustard bath of great utility in this disease, as there is a prevailing coldness of the feet and legs. This bath should be used whenever the coldness of the feet claim attention, be this daily, more seldom, or oftener. The ointment should be applied to a pretty large surface of the abdomen twice a day, until a pretty extensive vesication is produced, and repeated from time to time, as the vesicles may heal, as the urgency of the symptoms may require.

Narcotics.—Agreeably to our experience, much caution is required in the use of narcotics, at least opium; for to this drug only, in one form or other, do we fly, when it is proper to subdue pain by this means. Much mischief we are persuaded has been done by the too free use of this medicine, either when exhibited to abate pain, (coute qui coute.) when the disease has been mistaken, or not well understood. For as we have persuaded ourselves that the disease is inflammatory, we can readily understand why opium has done mischief, or why at least it has not proved always successful. This opinion must not be taken for a prejudice, or as one founded upon an hypothesis; for the medicine has failed in other hands, as is abundantly proved by Dr. Gooch's cases. Yet there is a period at which there is both propriety and advantage in the use of opium—and this is, after the general febrile symptoms have been removed or abated, and when the local ones are diminished in intensity.

When this period arrives, we do not hesitate to give opium, laudanum, black drop, or preferably, the sulphate of morphia in adequate doses at bed time, or oftener, if suffering require. Opium may be given with much advantage in either of the forms now mentioned, in enemata, as well as by the mouth. But we should carefully watch the influence of this medicine upon both the general and local symptoms; and if either be increased after its exhibition, or in other words, if it fail in procuring relief, the quantity should be diminished, or it should be withheld altogether, until the system be farther relieved of its susceptibility to stimuli—to prove how important an attention to this circumstance is, we need only refer to the case we have related from Dr. Gooch, where opium, and many other means were employed without benefit: yet the patient was almost instantly relieved by the application of a few leeches. In a word, if opium is to be useful, it must only be employed under a reduced state of the arterial system.

Of Injections.—Under this head, we will comprehend, first, such as will deterge the vagina, and at the same time, sooth the uterus; of this kind, is lukewarm flaxseed tea; a quantity of this should be thrown up the vagina, by a syringe of sufficient size, three or four

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times a day, if suffering be considerable, either from pain, heat, or throbbing. The injection should be retained for some time, by applying a cloth to the vulva, so as to prevent its too early escape. The other is sedative—and may be composed of eight grains of opium dissolved in a pint of hot water, and carefully strained—an ounce of this may be used after the other injection has removed *itself*. *Quere*, as more or less leucorrhœa pretty uniformly attends this disease, might not a weak solution of the nitrate of silver be used with advantage, as this remedy is known to exert a tranquillizing influence upon certain inflamed surfaces? We have found the "throbbing" much relieved by introducing a small piece of sponge saturated with equal parts of laudanum and water, within the os externum.

Regimen.—The diet of the patient should be most carefully attended to, and made to conform to the general indications: namely, to abate inflammation, and to relieve pain; therefore an antiphlogistic regimen, strictly so called, should be constantly adhered to, and persevered in, even some time after the apparent removal of the disease—for, as noticed before, no disease bears imprudences worse than the one of which we are treating.

Of the Pessary.—It frequently happens, that the uterus will remain prolapsed after the sensibility of the uterus is removed—when this is so, much advantage will be derived from the use of a well-adjusted pessary. Attention, however, should be paid, that it excite no pain, or other inconvenience, by its presence: if it should, it must be instantly removed, and not re-applied, until the parts have acquired a more natural state of feeling.

Tonics.—Much injury is frequently done, by the too early use of this class of remedies—in several instances we have witnessed severe relapses, by attempts to give strength to the body: they should therefore be withheld for a long time, or perhaps more safely, altogether, in very susceptible systems. In two instances, where the stomach had suffered much, great advantage was found from the use of the phosphate of iron, given from six to ten grains, three times a day.

We have selected two or three cases, that the general and local symptoms of the "irritable womb" may again be brought into view, and that the common routine of practice may be the better understood. In making this selection, we have not been governed by any peculiarity they exhibited, or because there was any particular departure from the ordinary mode of treatment; they have been chosen, (with one exception, the third,) because they were considered as fair instances of the "irritable uterus," and exhibiting the most usual train of symptoms, as well as the most uniform mode of treatment.

Case I.—Mrs. [illegible] aged thirty-six, the mother of five children, had been labouring under the following symptoms several months before we visited her; namely, a constant tenderness immediately behind the mons vene[illegible] converted into acute pain by any sudden exertion of the body, [illegible] walking up stairs, or going down. The pain experienced upon such occasions was of a lancinating kind, and of great severity; and when once provoked, would continue from one to two or three hours, suffering however a gra[illegible] abatement during this time. This pain was constantly excited if she sat upon a hard substance, and she was therefore obliged to guard against this inconvenience, by placing a soft cushion over the hole of a pierced chair. She found that emotions of the mind, if suddenly induced, would also have the effect, though in a more moderate degree than some other causes. Coughing or sneezing were sure to create great suffering. Upon examination per vaginam, the uterus was found considerably lower than natural; its neck was exquisitely tender, and larger than common—the os tincæ very closely shut, and the part of the body of the uterus within reach of the finger, as well as the vagina, were extremely tender; so much so, indeed, as to render the examination a very unpleasant operation—slight leucorrhœa of a milky appearance; the whole neck of the bladder was enlarged and tender, with frequent desire to pass urine, accompanied with a disagreeable sensation in the bladder, and the whole tract of the urethra. The urine was high-coloured, sparing and deposited largely. The menses pretty regular in recurrence, and proper in quantity, and employing about six days for its completion. This discharge was announced always by tenderness in the mammæ; a sense of fulness in the region of the uterus, with a feeling as if the uterus were constantly sinking lower in the pelvis—there was no dysmenorrhœa, nor any discharge of coagula.

The head was very frequently attacked by severe pain, especially on the back part of it. This became worse almost always in the afternoon, at which time a slight febrile exacerbation was sure to take place, though the pulse was always excited beyond the natural beat—it was corded, and not large, the skin dry, and where covered, the heat was above the natural temperature. The hands, feet, and legs, constantly cold, the bowels constipated, but easily urged to diarrhœa, the appetite pretty good, though variable, and the digestion not bad. The tongue very slightly furred, and paler than natural.

I ordered her to observe a horizontal position, a strict antiphlogistic regimen, to lose ten ounces of blood from the arm: the mustard bath for the feet and legs every other night, lukewarm flaxseed tea injections per vaginam three times a day, a rhubarb pill every night at bed time; and to forego matrimonial privileges, as extreme suffering was always experienced from their indulgence.

This plan was persevered in for three weeks without any remarkable change, save a general improvement of feelings. The uterus and every thing else remained pretty much as at the commencement of the plan. Four ounces of blood to be taken by leeches from the inner portion of the thighs—every thing else as before. After the third month had elapsed, there was an evident melioration of symptoms; especially of the uterus and the surrounding parts—their sensibility was much diminished, and the leucorrhœa abated—during this time leeches had been applied three times; the bowels kept daily open, and the urine was discharged less frequently, and with more freedom, but it still deposited considerably.

Injections of a weak solution of the acetate of lead, (two grains to the ounce,) were ventured on; leeches to the thigh as before; rest, diet, and the rhubarb pill as before.

At the expiration of three months more, symptoms were much improved: the plan had been persisted in with great fidelity and patience. Injections of the solution of opium were now substituted for those of the lead—a sixth of a grain of morphia was ordered whenever pain became severe; for this had never failed to attend, in a greater or less degree, though with much less severity and frequency than before. This lady was once blistered on the sacrum, but with such doubtful effect, that it was never repeated. At about this time the tartar emetic ointment was rubbed upon the lower part of the abdomen until a copious crop of pustules appeared, and with manifest advantage. It may be proper to observe, that this application can only be serviceable, we believe, after the violence of the disease has abated—it may be repeated in three or four weeks after the first, if the sensibility of the neck of the uterus be not subdued—we never use this ointment in the beginning of the treatment.

It now appeared that the disease was more certainly under the controul of the remedies already mentioned, and was daily abating in severity—the leucorrhœa entirely disappeared, nor has it returned. At the end of thirteen months the patient was entirely well, though weak from long confinement, and was now, and not until now, permitted to sit up; after this was tried a few days, and apparently with advantage, she was allowed to walk in her chamber, and rapidly gained strength by the indulgence. It was, however, soon found, that the prolapsed condition of the uterus was offering considerable inconvenience, and as the parts had entirely recovered their natural condition, a pessary was introduced with very prompt and decided advantage, and the patient is now enjoying a very comfortable state of health.

Case II.—It will not be necessary to detail the symptoms of this case, they bear such an entire resemblance to the one just related, that what was stated to have occurred in that, was generally repeated in this. There were, however, certain points of difference; namely, the patient had been labouring under the affection for several years, but had not derived the slightest benefit from what had been done for her relief. It was looked upon as a disease of debility, and the severe sufferings were supposed to be caused by spasm—hence bark, steel, cold bath, sea bathing, opium, hemlock, henbane, stramonium, warm bath, blistering, salivation twice repeated, &c. &c. were had recourse to, but to no other purpose than to increase debility, without diminishing suffering. In this case, pain was not so violent, but there was more leucorrhœa, and more profuse menstruation. This lady was confined to her bed from extreme weakness when we first saw her—the febrile affection was more distinctly marked, and great obstinacy of bowels. General bleeding was not employed in this case, with this exception it was treated like case first, but fortunately in this instance the patient was entirely restored in seven months. In this case, like the former, the pessary was employed from the period just mentioned.

Case III.—This case differed from the two now related, in three important points; first, the menses were very irregular in their returns, and always attended by hæmorrhagy to a very considerable degree; coagula were expelled in great numbers, and after each spell the patient was left much debilitated, though she for the most part kept about; secondly, there was profuse leucorrhœa of a purulent appearance; and thirdly, the neck of the uterus was very much larger than we had ever witnessed before, and its sensibility was very great. The same general plan was adopted, and the patient was very much relieved at the end of about five months, though not altogether well.

When we examined the uterus last, its neck was reduced to its natural size, and had lost nearly all its morbid sensibility. We have had some reason to gret, that the plan which had so far relieved the disease, had not been persevered in three or four months longer, as there was every reasonable expe tion that it would have proved still more beneficial.

Notwithstanding the success that attended the cases just related, as well as many more that we could mention; it is but fair to acknowledge there have been others, in which no such benefit was received, though remedies, generally speaking, were faithfully used, and every reasonable precaution taken to insure success.

Philadelphia, Nov. 1830.

Art. IV. *Longitudinal Section of the Lower Jaw for the removal of a Tumour.* By J. Rhea Barton, M. D. one of the Surgeons of the Pennsylvania Hospital, and of the Philadelphia Alms-house Infirmary. [With a Plate.]

THE records of medicine of this country, as well as of Europe, have already afforded so many examples of the successful removal of large portions of the lower jaw, in cases where the bone had been involved in disease, as to justify and establish the practice in desperate cases; and to require that the operation should henceforth be ranked amongst those in regular surgery.

If the case about to be detailed afforded only an additional evidence of the feasibility and success of the common operation, an apology might be deemed necessary for encumbering the journal with superfluous matter, but as there is some novelty in the mode of operating, a short account will be given to illustrate it.

On the 28th of July, 1830, Isaac Duffield, a mulatto man, thirty years of age, from the State of Delaware, was admitted into the Pennsylvania Hospital, with a disease said to have originated in the gum which had been injured by the pressure of the fulcrum of the key, used in the extraction of a molar tooth of the left side of the lower jaw, eighteen months previously.

It assumed the form of a tumour, involving the gums, alveolar processes, and part of the body of the bone, and gradually increased in size until it had taken entire possession of the mouth, forcing the tongue into the pharynx, and stretching the jaws widely apart. A large portion of the tumour also made room for itself by escaping from the cavity of the mouth, and rising upon the outside of the superior maxillary bone, thus producing great deformity by protruding the lips and left side of the face and neck. Where this loathsome mass presented itself at the mouth it was in a state of ulceration. The tumour was of a florid red colour. It was dense, elastic, and lobulated, and in its structure partaking much of the character of the gums. From its surface was secreted large quantities of muco-purulent matter.

Upon introducing a spatula into the mouth, and putting the right cheek upon the stretch, the patient could force the tip of the tongue into view between the half arches and the side of the tumour.

As he had neither room for solid food, nor power to masticate it, his nutriment was taken in fluid form by a similar process of distending the cheek.

Epulis is the name assigned by writers to this species of tumour, which, though not malignant in its early stage, nor *essentially* so at any period, is said frequently to eventuate in a cancerous disease. The peculiarity of the operation I am about to describe, consists in the *longitudinal* section of the bone, by which *a rim at the basis of the bone* was preserved to support the under lip and chin, thereby obviating the distortion of the face consequent to the usual mode of cutting out an entire piece of the bone by the perpendicular section.

Operation.—On the 4th of September, an incision was commenced over the left angle of the lower jaw, carried on a line with the under edge of the base, around to near the facial artery of the opposite side. This incision extended through the integuments and muscles of the cheek and lip, so as to open the cavity of the mouth. The under lip, towards the left commissure of the mouth, was cut through to meet the first incision at a right angle. The tumour was thus brought into view, exposing fully its connexion with the lower jaw, to the anterior and posterior surfaces of which it firmly adhered. The adhesions were detached from the anterior surface of the bone, as high from the base as it was sound. A section was then made with a saw, through the body of the bone, just below the maxillary canal, in a line parallel to the base of the jaw, and extended as far back as the roots of the last molar tooth, on the left side, and to the last but one on the right side. A perpendicular section was then made with a narrow bladed saw, between the teeth through the alveolar process, until it met at right angles the first division of the bone. The portion thus insulated contained the diseased mass. The tumour was then elevated, and its connexions with the inner surface of the bone separated. It now came away entire, exposing the body of the bone in a healthy state, except at one point on the surface, which was readily taken off with the nippers.

No blood-vessels were taken up but the left facial and right coronary arteries; the hæmorrhagy from other points ceasing spontaneously. The flap was now replaced, and the sides of the incision carefully adjusted: the lip closed with the hair lip pins, and the rest supported by interrupted sutures and adhesive plaster.

The patient did well: the wound united by the first intention, and in a short time the parts within the mouth healed over the bone. The tongue regained its natural position. The distended and flaccid lips and cheek gradually contracted to their natural dimensions, but their collapse was prevented by the rim of the jaw which had been left. The contour of the face was thus preserved, and the patient recovered the power of masticating his food with the three remaining teeth, and their antagonists of the upper jaw.

On the 9th of October following, the man was discharged from the Hospital cured, and almost incredibly free from deformity.

I have adopted an unusual mode of explaining this case. In place of giving a representation of the individual's appearance anterior and subsequent to the operation, I have preferred a delineation of the tumour placed within the bony structure as it was relatively situated. By the former method, the nature and extent of the external deformity, and the subsequent removal of it, only would have been comprehended, which may be imagined from the preceding description, whilst from the latter a tolerably correct idea of the size and character of the tumour may be formed.

Explanation of Plate III.

Fig. 1. Represents the tumour in its relative position, adhering to, and involving the lower jaw. It had formed no adhesions to the upper maxillary bone, but its shape was somewhat regulated by contact with the inequalities of it. The tumour, in its present contracted state, (being preserved in spirits,) varies from three to five inches in diameter.

Fig. 2. The outline of a lower jaw, introduced to exhibit a view of the section of the bone.

Fig. 3. The shape of the small saw used for cutting through the alveoli between the teeth. The longitudinal division of the bone was accomplished with a saw of similar construction, but much larger, having a blade seven inches in length. This instrument, though not made for the purpose, answered perfectly; but the saw of the amputating case might have been employed.

Philadelphia, *Dec.* 1830.

Art. V. *Observations and Reflections on the Employment of Strychnine in the Treatment of Paralysis.* By E. Geddings, M. D. Lecturer on Anatomy and Surgery, Charleston, S. C.

THE materia medica is subject to incessant revolution. Daily experience unfolds to us some new therapeutical resource; and while hundreds of new remedies, which have been issued into notice by the most extravagant encomiums, are perpetually passing into a speedy and well-merited oblivion, bountiful Providence reveals to us many invaluable properties in others, which we have been accustomed to overlook, or consider as possessing but feeble claims upon our attention. But a few years ago, and the principles upon which the efficacy of Peruvian bark and opium depends, were unknown, and those articles could not be divested of the disagreeable concomitants which necessarily attended their administration. But what are the lights of modern chemistry not capable of accomplishing? Guided by its influence, what an inestimable blessing has the ingenuity of Pelletier, Caventou, Sertuerner, &c. conferred upon mankind, by their discovery of the active principles of these articles! a discovery scarcely less important than that of the circulation of the blood. It is, moreover, but a short time since nux vomica was suffered to moulder upon our shelves: but this neglected substance was destined to furnish, to the researches of Fouquier, results capable of leading to the consummation of the most important purposes. This distinguished physician has ascertained, that in nux vomica we possess a most efficient means of treating paralysis—a disease, which, under all circumstances, is exceedingly difficult to manage, and which, under our former resources, too often baffled our best directed efforts. Chemistry has, moreover, taught us, that these important properties reside, in a concentrated form, in a peculiar substance which has been designated strychnine. It is with a view of adding our feeble weight of testimony, to that which has been already furnished, in favour of the remedy in the treatment of paralysis, that the following cases have been drawn up. The results which they have furnished have tended much to heighten our faith in the efficacy of the article, and we shall feel pleased if the communication of our own experience should incite others to make trial of it under similar circumstances.

The first case we shall detail is one of hemiplegia of the whole of the left side of the body. The individual was a male, aged about fifty, who was employed as a boat hand. He was placed under our care about the 20th of July, 1829, and from all the particulars of his case which we were able to collect, it appeared that he had been very suddenly attacked with the disease, about a month previously, whilst engaged in cutting wood. He was seized with violent pain of the head, left arm and leg, fell down in a state of insensibility, to which succeeded, in a short time, a total loss of sensation and motion of the leg and arm, and double vision. He was still in this condition when we first saw him, with the exception that the double vision had disappeared, and he was so far sensible, as to reply rationally when addressed in a loud voice. There was no febrile disturbance, no impediment in the powers of speech, and the principal difficulty consisted in a loss of sensation and motion on one side. The leg and arm could be violently pinched or pricked without the patient evincing the slightest feeling, and the only pain he complained of was in the head and back of the neck.

He was ordered an active cathartic of calomel combined with jalap, principally with a view of creating a revulsive impression from the head to the lower intestines. Directions were also given to have his head shaved and blistered, and to have sinapisms applied to the legs.

21st. The medicine has operated, and the blister has drawn well, but without producing any improvement in the condition of the patient, except a slight amelioration of the pain of the head and neck. He is restless, and his mind somewhat wandering.

22d. The same condition. Cathartic directed to be repeated, and cups to be applied to the nape of the neck, the part afterwards to be covered by a blister.

23d. No improvement. Ordered sinapisms to the legs, and stimulating frictions to the paralytic members.

24th. The same condition continuing without any amelioration, we resolved to put him upon the use of the strychnine. The following was therefore directed:—℞. Strychnine, gr. vj.; alcohol, ℥i.; of which six drops were administered morning and evening.

25th. The dose of the medicine was increased to ten drops twice a day.

26th. Experienced this morning considerable spasmodic action of the muscles of the paralytic members. Mentioned the circumstance without being questioned, and compares the sensation to that which might be occasioned by living animals leaping in the flesh. No affection of any but the paralyzed muscles. Complains, for the first time, of pain when pricked with a pin. Medicine to be continued.

27th. Slight improvement. Complains of pain in the back of the neck. Ordered a blister to be applied to that part; tincture of strychnine to be increased to fifteen drops.

28th. Pain relieved. Can flex the leg slightly without assistance. The sensibility is also improved. Has had twitchings of the muscles of the arm. The paralytic leg and arm have become œdematous. Medicine to be continued.

29th. The improvement is progressive. The leg when pricked suddenly was flexed with great force. Arm, however, in nearly the same state.

30th. Can flex the leg to a right angle with the thigh, and again extend it. Has had twitchings of the arm and leg. The same prescription continued.

31st. Further improvement. Can flex and extend the leg with great freedom. No perceptible improvement of the arm.

August 1st. The improvement is progressive. Medicine to be increased to eighteen drops three times a day.

2d and *3d.* Improvement continues. The muscles of the arm affected still more with spasm. Medicine increased to twenty-four drops.

4th. The condition of the leg continues to improve. The arm, however, remains in nearly the same state. From this time the amelioration was uninterrupted, and at the expiration of about a week he began to walk with the assistance of a crutch, and in a short time the power of motion in the leg so far improved as to enable him to walk to any part of the city. He finally recovered sufficiently to be sent into the country. At the time of his departure, however, the arm had not regained its powers, and had undergone but a very slight amelioration. Since then, we have not been able to learn any thing of his situation.

This case is calculated to furnish some very important inductions relative to the administration of strychnine in cases of paralysis. From the general phenomena exhibited during its progress, as well as the nature of the attack at first; the complete loss of sensation, succeeded almost immediately by a total loss of motion, on one entire side of the body; the mental imbecility and wandering, which continued even throughout the whole course of the disease, all conspire to render it almost certain, that the hemiplegia originated from an extravasation of blood in, or upon some part of the brain. This was, indeed, our opinion of the case from the period it first came under our attention. Under these impressions, the indications seemed to be to subdue local irritation by cups and blisters, and to create a revulsive impression from the brain to the bowels and extremities, by means of drastic cathartics, and sinapisms applied to the legs. We had always thought, with Andral and others, that nux vomica, strychnine, or brucine could not be used with any benefit in cases of paralysis arising from a recent attack of apoplexy. We had even publicly deprecated the practice, in our lectures, as fraught with danger. It was, therefore, only after we had used the other means without any apparent benefit, and had, from the general aspect of the case, considered it one of a desperate character, that we resolved to give the strychnine a trial, not with any hope of advantage, but principally with a view of testing its effects upon the constitution, under similar circumstances. The results disappointed our expectations, and have tended, somewhat, to modify the opinion we had advanced. We are, however, far, even now, from considering the remedy appropriate to the generality of cases of paralysis proceeding from recent attacks of apoplexy. On the contrary, we still think, that in a majority of them, it would not only fail of success, but would prove prejudicial, if used before the proper preparation had been made by depletion. What, in effect, is the condition of the brain under such circumstances? It is at first compressed by the extravasated blood, and this compression is, of itself, sufficient to give rise to paralysis. But in addition to this, the extravasated blood acting upon the principle of a foreign body, produces a constant source of irritation to the adjoining portion of the brain; an increased determination of blood takes place to the point: its nutrition becomes modified: its texture softened, and its cohesive power broken up. This condition cannot, therefore, fail to augment the paralysis: and while it continues, we can hope nothing from the stimulating influence of strychnine. Direct depletion and revulsion are the grand hinges upon which the whole of our treatment must turn, and by no other procedure can we hope to relieve our patient. But in process of time, the condition of the organ becomes, by a series of changes, very much altered. We know, from attending to the pathological conditions of the tissues and organs, that a speedy effect of irritation is to give rise to a ramollissement, or softening, more or less extensive. We also know, that after a time, under certain modifications of the same process, new molecules are elaborated, coagulable lymph is deposited in the midst of the pre-existing molecules, the rudiments of vessels permeate this new product, it becomes organised, grows gradually more and more compact, and in cases of apoplexy, finally forms a complete cyst, or membrane, surrounding the extravasated blood, thus completely isolating it from the brain, and cutting off, or counteracting its injurious influence upon that organ—until this is effected, a link in the chain of influence between the brain and a portion of the nerves is broken, and as the latter derive their controlling power from the former, it necessarily follows, that while this severed link remains unrepaired, a paralysis more or less extensive must exist. Strychnine, under such circumstances, cannot repair the breach, and therefore has no power to remove the influence which it exercises upon the muscles. But so soon as the resources of the living organization have, by setting up the changes which have been pointed out, restored to a certain extent the injury which has been sustained by the brain, the parts have acquired a condition which warrants us in hoping something from the stimulating influence of that article. But it may be asked, why is there any necessity for resorting to such adventitious aid, after the lesion of the organ has been repaired? We would reply, for two reasons: 1st. That the integrity of the organization is not completely restored, consequently we cannot expect that the integrity of its operations will be renewed without assistance. 2d. That from the long quietude, or repose, to which the paralytic muscles, or rather nerves, have been submitted, the brain does not, when restored, regain immediately its controlling influence over them, which it only attains by degrees, and by the aid of some agent which possesses the power of exciting, in a special manner, the nerves themselves, so as to exalt their vital properties to that degree which is essential to enable them to feel and act under the influence of the brain. Do we not, in effect, sometimes observe the muscles, even where the brain possesses its perfect integrity, lose their power of acting, merely from long-continued repose? Do we not find them becoming relaxed, wasted and enfeebled, in the inactive and sedentary, merely from the want of employment? This can only be ascribed to the controlling agency of the brain becoming weakened, because it is not exercised, or to the susceptibility of the nerves to the empire of that organ being diminished, from their being suffered to remain for a length of time in a quiescent or inactive state. The parallel, we think, holds good with paralysis: and under the circumstances pointed out, the efficacy of strychnine, in restoring the powers of sensation and motion, depends entirely on its peculiar property of exciting the nerves, and thus exalting their vital powers to that degree which is requisite to enable them to feel and react under the empire of the great nervous centre. If these views be correct, they fully explain to us the futility, or even danger of administering the article in question in that form of paralysis, which succeeds apoplexy, before sufficient time has elapsed for the changes which have been pointed out, to effect the restoration of the part, and the good effects which we sometimes have reason to hope from it, after they have produced their full effect.

Another phenomenon was observed in this case, as it has been in many others; the limitation of the tetanic contractions of the muscles to the paralytic members. At no period of the disease was any thing of the kind observed on the opposite side. The same was true of an œdematous affection which took place in the paralyzed leg and arm, shortly after we began the administration of the strychnine. It would be difficult to offer a satisfactory explanation of either of these phenomena. We cannot suppose that the medicine could exercise an exclusive influence upon the paralyzed nerves, without affecting those which are in a healthy state. It must operate upon both in an equal degree, and we can afford no more satisfactory explanation of the spasmodic action in question, than upon the supposition, that the nerves become unusually excited, while the actions which they communicate to the muscles are deprived of the regulating influence of the brain. which we have seen is cut off in the manner above pointed out; hence they are thrown into irregular, convulsive motions, while the healthy muscles act regularly. But it may be urged against this hypothesis, that the healthy, as well as the diseased muscles, sometimes experience the same irregular actions. In reply to this objection, we would state that under such circumstances, something has transpired to break up, or derange the natural harmony which directs and regulates the controlling influence of the brain over the nerves, so that the natural susceptibility of the one or the other is modified, or that some irregularity takes place in the transmission of the influence of the one through the other, and, consequently, irregular discordant contractions are the necessary result. How often, indeed, do we find the muscles, even in the healthy state, becoming affected with violent cramps, or uncontrollable tremors, from over-exertion or fatigue? and is it not manifest, that under such circumstances, some derangement of the kind to which we have adverted takes place? We are free to confess that we can offer no other solution of the question, which is at all satisfactory to ourselves.

As to the œdema, it is a question whether it should be considered as a consequence of the paralysis, or of the operation of the strychnine. We can readily conceive how a paralysis of the muscles may, by depriving the veins of that presence and support which is partly instrumental in propelling the blood through them, and how the venous trunks, by becoming thus distended, may, by being unable to receive and circulate their usual quantum of fluid, occasion the œdema of the members. But in the case before us, as well as in one or two others which we have witnessed, although the paralysis had existed for a length of time, (in one more than a year,) no œdema made its appearance, until after the strychnine had been administered. Supposing, then, the medicine to have been instrumental in producing it, what rationale can we offer of the fact? There are some other articles of the materia medica, for instance, arsenic, which possess the power of producing similar serous effusions. It is difficult, however, to conceive how any of these articles can produce such effects. Can it be by enfeebling the action of the heart and arteries? We think not; for in many cases a febrile condition exists, with frequent, hard, and strong pulse. Is it by altering the condition of the capillary vessels, and modifying their operation, so as to destroy the harmonizing relation which exists between the arterial capillaries, by which the fluids in question are exhaled, and the venous and lymphatic radicles by which they are absorbed? This we consider a more rational solution of the question, inasmuch as we have generally observed that the administration of the medicine is productive of great pain and soreness of the common integuments, which frequently continues long after it has been left off. Irritation of the capillaries, produced by the influence of the strychnine, is, therefore, the only rational explanation we can offer of the phenomena in question. But this does not by any means explain why it is that the œdema is confined to the paralytic members. We can only offer a conjecture upon this point: that the capillaries being irritated, and, with the veins, deprived of the support afforded by the surrounding muscles, œdema will take place more readily than where the muscles act, and by the compression they exercise upon these vessels, propel the fluids through them.

The next case we shall detail is one of a very different character. Thomas Wood, aged twenty-eight years, was admitted into the Charleston Alms-house Infirmary, on the 18th of October, 1829, labouring under general paralysis. Of his precise condition at the period of his admission we are not acquainted, as we were not at that time attached to the institution. One thing, however, is certain, that he was completely helpless, and we believe his general health was very much impaired, from the intemperate use of ardent spirits, and the exposures and privations incident to his habits. About the middle of January, 1830, when he first came under our observation, his general health had improved considerably under the treatment to which he had been submitted, but the paralysis had undergone but little or no amelioration. His legs and arms were so completely powerless as to render him incapable of helping himself, and whatever he took by way of food or medicine, had to be put into his mouth by another person. His legs were drawn up to a right angle with the thighs and could not be straightened. His bowels had, moreover, so far lost all power as to be incapable of expelling their contents, except when inordinately excited by stimulating enemata. The state of the patient could not be attributed to any thing like extravasation within the cranium, as he never had suffered any thing which could lead to a suspicion of such an occurrence. His previous habits, as well as the general aspect of the case, furnished a strong presumption that it originated from the long-continued and intemperate use of bitter beer and ardent spirits, especially gin, which had probably been adulterated with acetate of lead. That this was the case, we are disposed to infer, independently of other considerations, from the fact, that we have met, in hospital practice, and amongst the poor, with a number of cases of paralysis, and have generally found, that the subjects of these attacks have been persons addicted to the immoderate use of inferior gin and beer. These cases have, moreover, all presented the usual manifestations of paralysis from lead.

Taking this view of the case, we resolved to try the effects of strychnine, administered in liberal doses. He was, accordingly, directed to have daily a strong aloetic injection for the purpose of unloading the bowels, to be followed, after the operation was over, by half a grain of strychnine, suspended in a small quantity of mucilage. He was also directed to take the twelfth of a grain of the same medicine night and morning. This treatment was instituted on the 15th of January, and was continued until the 24th. On the 16th a splint similar to Pemberton's was applied to the left arm by way of experiment, but after being worn for some time, it appeared to be rather prejudicial than advantageous, and was consequently omitted.

24th. The strychnine, in the doses above mentioned, was directed to be given thrice a day. The aloetic injection and the half-grain of strychnine to be continued as before. On the 26th the medicine was increased to the sixth of a grain night and morning. The compound aloetic pills were also directed every night, in sufficient doses to excite the lower bowels. Strychnine injection still continued. No further alteration was made in the treatment until the 8th of February, when the medicine was increased to three pills, of the twelfth of a grain each, night and morning. The aloetic pills and strychnine injection to be continued as above. A carved splint, long enough to extend from the nates to the heel, and also bound upon the posterior part of the thigh and leg, on one side, with a view of overcoming the flexed position of the member. After using it, however, for several days, without any benefit, it was abandoned. On the 16th, in addition to the other remedies, we directed the muriated tincture of iron with a view to its tonic effect, and it, with the other remedies was continued until about the middle of March.

For several days after the strychnine was first administered, very little change was observed in the condition of the patient, and the usual tetanic contractions were scarcely observable; nor were they considerable at any period during the treatment. In the course of a fortnight a marked improvement was observable. The patient began to flex and extend his arms with facility, and could grasp any thing in his hands with considerable firmness. From this time, his improvement was progressive but slow. His bowels soon began to act with more freedom; his ability to move his limbs increased, and in a short time, he so far recovered the use of his arms, as to turn and move himself in bed, and take his food and drink without assistance. By the 1st of March the mobility of the members had become so far restored, that nothing seemed to prevent him from walking but the flexed position of the legs and a want of confidence in his own powers. These difficulties were gradually surmounted by means of frictions and exercise, and at the present time, though he still experiences a little stiffness of the members, he can walk without assistance, and descends and ascends almost daily a long flight of stairs. The bowels have been, for some time past, in possession of their natural tone, and evacuate their contents without the aid of medicine. The general health of the patient is entirely restored.

This case exhibits to us many features of an important character; the cause by which it was produced, the great extent of the paralysis, rendering the patient completely helpless, and especially the implication of the muscles of organic life, as exemplified in the paralysis of the rectum, are considerations which deserve comment.

We have already stated our reasons for supposing the disease to have been produced by lead, employed in the adulteration of the liquor which the individual had been in the habit of using immoderately. The operation of this cause was probably assisted by the exposure, the irregular diet, and other accidental circumstances to which his intemperate habits exposed him. But we are here met by a question of considerable interest; how do the salts of lead operate in producing this paralyzed condition of the muscles? To this, it is not an easy matter to reply satisfactorily in the present state of our knowledge. One thing, however, is certain, that these preparations exercise an influence directly debilitating upon the animal organization, or in other words, that they diminish the nervous susceptibility, and thereby diminish or modify irritation in the nerves themselves, as well as in all the tissues to which they are distributed. If, with the Italian school, we divide all agents into stimulants and counter-stimulants, lead would fall under the latter class, a situation to which its effects on the constitution clearly entitles it. If we are asked for proofs of this, we will only reply, that they are furnished in great abundance, in the daily employment of the article in the treatment of diseases, in its soothing influence upon inflamed surfaces, in its power of controlling the exalted irritation of the mucous membrane in fever, in moderating bronchial irritation in chronic catarrh and phthisis pulmonalis, in arresting hæmorrhage, &c. It is, therefore, in virtue of a similar operation upon the nervous and vascular systems, long continued, and carried to an inordinate extent, that the salts of lead occasion paralysis. This it may effect by being taken into the stomach, inhaled by the lungs, or applied to the skin. In either case, its action seems to be exercised directly upon the nervous filaments, which preside over the functions of the several tissues to which it is first applied. We shall endeavour to illustrate our proposition, by considering those cases in which the lead has been taken into the stomach.

The stomach and intestines derive their nerves from two sources or systems: the one ganglionic, coming from the great sympathetic, and subservient to circulation, secretion, &c.; the other from the pneumogastric, destined more especially to preside over the contractions of the muscular coat of the tube. These form a free and intimate connexion with the spinal and other nerves, by means of numerous anastomosing branches, so that whatever affects the one, must have its influence not only extended to the others, but even to the spinal marrow and the parts within the cranium. Lead, therefore, applied to the mucous surface of the alimentary canal, and exercising upon it a directly counter-stimulant impression, two important consequences are immediately developed: 1. The nervous filaments which regulate contractility, circulation, secretion, &c. are debilitated: the capillaries, deprived of their nervous influence, are unable to propel their contents forwards: a congestion consequently takes place in these vessels, the harmony of the circulation is thus deranged, and the secretions diminished, suspended, or perverted. 2. The filaments which controul the muscular coat being submitted to a similar impression, that tunic becomes enfeebled or paralyzed, and when these conditions are developed in a considerable degree, all the phenomena of colica pictonum are manifested. By an extension of this influence still further, consequences of a still more formidable character are produced. Where the impression made by the counter-stimulant influence of the lead is intense, or when it has been maintained for a length of time; it is finally communicated to the spinal marrow, which thus having its powers enfeebled or paralyzed, the parts which it, as a great nervous centre, controuls and regulates, must suffer in a proportionate degree. This we consider as the train of sequences which attends the formation of paralysis from lead, an opinion which seems to be justified, as well by the phenomena of the disease, as by the state of the intestinal tube in those who have died affected with that malady. What, in effect, are the first symptoms which arise from the employment of the article in question? The secretions are suspended, and the muscular coat of the intestine is paralyzed, hence an obstinate constipation of the bowels ensues. To this succeeds pain, because the congestion of the capillaries, occasioned by the diminution of their contractile or propulsive energies, together with the retention of the indurated fæces, give rise to irritation, which in many cases of colica pictonum is strongly marked. Finally, the nervous centre becomes affected, and from it the influence is extended to the muscles of animal life, which become enfeebled or paralyzed. This view of the pathology of the disease not only comports best with its phenomena, but also with the results obtained in its management. It has been most satisfactorily ascertained, that those remedies are most successful in the treatment of paralysis from lead, which exercise a powerful stimulating impression upon the nervous system, as electricity, galvanism, frictions, nux vomica and its preparations, brucine, rhus toxicodendron, arnica, &c. This was strongly exemplified in the second case detailed above. We have seen that the paralysis not only implicated the muscles of animal life, but that the lower bowels were so much affected as to render them incapable of performing their office, except when excited by powerful stimuli. It was under these circumstances that the half-grain of strychnine was administered by injection, with a view of acting directly upon the affected part. Under its employment the contractility and secretions of the tube were gradually restored, and in proportion as this restoration took place, the intestine regained its wonted power. The influence of the medicine, moreover, which was administered by this process and by the mouth, was next communicated to the spinal marrow or nervous centre, and from thence to the nerves which supplied the paralytic muscles, which being invigorated by this new impression, were restored to their former power. This is the exposition of the phenomena of the cure and its treatment, which, after watching its progress, and reflecting upon the circumstances attending it, we feel ourselves warranted in making. Whether our views be correct or not, the different articles which have been mentioned, are certainly the most efficacious that can be administered in this form of paralysis, and under proper management, we believe, that in such cases it will seldom disappoint our expectations. In proof of its efficacy we might adduce several other cases, less formidable in their nature, but originating in similar habits, and under similar circumstances.

John Hood, aged thirty years, was admitted into the Alms-house Hospital, on the 8th of June, 1830, affected with paralysis of the forearm and hand. The powers of motion were almost entirely destroyed, and sensation was so far extinct, that the part could be severely pinched without occasioning pain. He took the strychnine in the doses employed in the preceding cases, and by persisting in its use for about a fortnight, using at the same time frictions and pumping, he was relieved. The habits of this individual were intemperate, and it is highly probable that the affection of the arm proceeded from the influence of lead employed in adulterating the liquors which he drank.

Daniel Reardon, aged fifty-two years, came into the Hospital on the 20th of July, 1830, with the forearm and hand paralyzed, and was put upon the same course of treatment which afforded speedy relief. At present he moves his arm and hand with great freedom, and only complains of a slight degree of weakness in the part. His habits are intemperate, and he states that he has been accustomed to drink very freely of common northern gin. We can assign no other cause for his disease than that which has been offered in the above cases.

In conclusion, we think it is undeniable, that in the above cases, the good effects of the strychnine were strikingly manifested, and that under similar circumstances, much may be expected from the judicious employment of that article. We are at present using it in some other cases, but are unable, as yet, to determine what will be the result. We will take this opportunity of observing that we have employed strychnine with much apparent benefit in some forms of chronic irritation of the alimentary canal, especially in persons who were affected with habitual constipation of the bowels. It should, however, always be borne in mind, that its natural tendency is to irritate the mucous membrane.

Charleston, September, 1830.

Art. VI. *On the Employment of External Medications.* By William M. Fahnestock, M. D.

TOPICAL emollient and anodyne medications have been resorted to in all ages to relieve a variety of symptoms of morbid action, and though for a time they were nearly abandoned by regular practitioners, the new system of practice, founded on the results of pathological investigations, which discards the use of active irritants in many diseases for which they had been deemed indispensable, has gained for the emollients a more favourable support, and they are now extensively employed in France and throughout the continent of Europe.

Formerly we prescribed rubefacients and epispastics in accordance with the general practice of this country, not only in active inflammations, as pleuritis, tracheitis, gastritis, enteritis, peritonitis, &c. but in almost every case of obstinate remittent fever, colic, cramp, head-ache, &c. &c. much to the inconvenience and torture of our patients; and we continued, under an honest conviction of the necessity of such a course, till our attention was attracted to the pathological science, which has shed so much light on the nature and treatment of diseases; and we cannot now reflect but with pain, upon the suffering we have witnessed in fevers and other affections arising from the use, or more properly, the abuse of blisters, which we have known to keep up the most painful and insupportable irritations for weeks, and even months, after the removal of the original disease.

The modus operandi of blisters has at different times elicited much discussion. Many writers ascribe their beneficial operation to the serous evacuation; but it is now generally conceded, that the influence they exert consists in exciting a counter-stimulation, and that they are efficacious in proportion to the revulsion they produce. The pathological condition exhibited after the successful application of an epispastic, evinces a high state of irritation and phlogosis in the dermoid tissue, the cuticle being separated from the cutis vera, and forming a vesicle which contains a thin, acrid fluid. Sometimes the inflammation extends to the cellular tissue, and not unfrequently produces nervitis in the radicles of the papillæ. The physiological phenomena discover increased movement in the functions of the skin, exhaling an inordinate secretion from the engorged vessels, which afterwards continue to exude a puriform discharge as the inflammation declines, and manifest great nervous excitation; which is communicated, in many instances, to the adjacent organs, and extended by sympathetic association, until febrile excitement is developed in the system. MM. Edwards and Vavasseur assert, that "although the immediate action of the greater part of these substances, (rubefacients and epispastics,) be merely local, they sometimes produce a general excitation."* "The pitch plaster, sinapisms, and blisters," Begin contends, "differ only in the degree of irritation they produce. Sinapisms present this peculiarity; they determine in the skin a rubification, accompanied with sharp and burning pains, and are capable of producing agitation and fever, and of becoming, in many cases, quite intolerable. This topic applied to the feet, and extended to the legs, is specially serviceable when the brain is the seat of violent congestion, which requires to be speedily arrested. Its action, however, must be carefully watched, on account of the facility with which it excites the sympathies. The same applies to blisters, the stimulating action of which it is often necessary to subdue by emollient cataplasms."† And Professor Chapman says, "by the increased action blisters excite, the primary effect is indubitably stimulant, though, from the quantity of fluid poured out, it would appear also to be ultimately evacuant. But among experienced practitioners, little hesitation prevails as to which of these operations the best effects of blisters are to be ascribed. * * In estimating these remedies, it will be prudent, as a guide in practice, to consider them as stimulants, sometimes by inviting morbid excitement from distant parts, at other times by producing a local impression which overcomes the existing one. * * * Blisters, however, have a more pervading effect, and hence are useful in complaints of a general or constitutional nature. They act here, as in the former case, by their stimulating power, increasing the force of circulation, and heightening excitement."‡

With this strong evidence of their incitant power, it seems surprising that in this country, where pulmonic diseases partake so eminently of the phlogistic diathesis, any difference of opinion should exist in the application of vesicatories in the early stage of those diseases, when absolute depletory treatment is imperiously demanded. The weight of authority opposed to that perturbating treatment ought to be sufficient to explode it at once. We need add the testimony of but a few to convey the general sentiment on this subject. "Blisters," Broussais asserts, "generally increase the inflammations, whether acute or chronic, of the different tissues of the lungs, when they are applied before antiphlogistic treatment; but after repeated bleedings they are very successful in producing revulsion."* "It has struck me sometimes very forcibly," remarks Dr. Armstrong, "that the precipitate application of blisters to the chest, before general or local bleeding, is a prejudicial practice; at least I have seen hydrothorax rapidly follow it from the increase of general and topical excitement, which blisters thus applied had apparently produced."† "My rule," says Dr. Chapman, "which I have reason to think is sanctioned by good authority, is to postpone the blister, especially in pleurisy, till some considerable reduction of arterial action is effected. Earlier than this I have found the blisters scarcely fail to occasion great distress to the patient, and assuredly aggravate the symptoms they were destined to relieve."‡

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* Manual of Materia Medica and Pharmacy. Togno and Durand's Translation, p. 69.

† Traité de Thérapeutique, t. II. p. 764.

‡ Elements of Therapeutics, Vol. II. pp. 92–93.

Walcarenghi, Borelli, Richa, Guidetta, and Fordyce, long since pointed out the pernicious effects of blisters in fevers, and other diseases of excitement, but it was reserved for the physiological school of medicine to expose the impropriety by philosophical reasoning and clinical demonstrations. Much injury has been inflicted under the erroneous hypothesis of evacuating the morbific matter from the system by these issues, which was held by the Greek school to be the cause of fever, and is still maintained by the humeral pathologists of the present day. With this intent four, five, six, and even seven blisters were applied in the commencement of the disease, and the discharge kept up by savin ointment, and other stimulating applications, or a renewal of the vesicatories, which generally serve but to aggravate the excitement and prolong the sufferings. Another project equally pregnant of danger, is the attempt to subdue the disease by producing a greater general excitement than the disease itself with blisters, as a substitute, and on the same principle as instituting the all-subduing mercurial action. The propriety of removing a local and confined irritation by revulsive remedies cannot be questioned, but we doubt much that an imitation of the above practice would be sanctioned by any faculty in the present improved state of medicine. Several cases of an aggravated character, arising from these mistaken views, have come under our observation. We need but allude to two, which occurred in medical gentlemen, my friends, the late Dr. Cornelius Luther, and Dr. David Umberger, now of Linglestown, Pa. who had been put under the latter treatment after a few emetics and purgatives had failed to subjugate the disease. In these cases the blistered surface kept up the most violent irritation for weeks, notwithstanding the most assiduous and unceasing efforts to allay the pain and inflammation, while they continued to exhaust the strength and prostrate the vital powers of the system, and were only alleviated by stramonium ointment, in time to save the patients from the fatal ravages of ill-devised remedies. "Blisters," says Broussais, "often augment gastro-enteritis, because the inflammation they produce adds to that of the digestive mucous membrane instead of producing revulsion: they do not then perform the services expected of them in the adynamic fevers."* And Dr. Chapman admonishes "never to recur to blisters in diseases of the higher grades of action, till the system is reduced by venesection and other depletory measures. Too early employed in such cases, they hardly ever fail painfully to increase irritation, and exacerbate morbid excitement."† Much practical advantage may be derived in these affections from attentively studying the changes which are constantly taking place, and by directing the remedy at that period betwixt high excitement and the state of collapse, which Dr. RUSH denominated the blistering point. Delayed too long they fail to produce a proper revulsion, and have a great tendency to disturb the feeble remnant of the conservative powers of the organism.

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* Examen des Doctrines Medicales, Prop. cclxxxix.

† Practical Illustrations on the Scarlet Fever, p. 154.

‡ Elements of Therapeutics, Vol. II. p. 101.

Anxious to remedy the evil sustained by the administration of these therapeutic agents, we had recourse to the milder applications, and have succeeded so admirably, that we now only recur to the greater irritants after we fail to divert morbid action by other means, and we wish to produce a powerful revulsion. Would it not be much more philosophical, where cups and leeches cannot be procured, instead of persisting with the irritating substances, to endeavour to subdue the irritation and congestion by venesection and the more soothing applicants? Whether emollient and anodyne medications applied to the external parts, effect their purpose by a revulsion or counter-irritation, that is, whether they act by drawing toward the part to which they are applied the vital actions which had concentrated in others, or how far they operate on a purely anodyne impression, we are not prepared positively to assert: nor can we pretend to determine on the confidence to be placed in the process of abstraction of stimuli, or the credence to be given to the absorption of the particles of the medication. We think, however, that it is not probable, that an equal degree of irritation appears on the surface to which the medications have been applied; the means employed to abstract excitement we do not think justify the conclusion; and we confess ourselves ignorant of the manner the absorbed particles would apply themselves to restore the lesion, other than by modifying nervous exaltation. We are not disposed to occupy much space with speculations, but do believe, with M. Bégin, that "in the present state of medicine, it is no longer sufficient to say, that such a remedy has succeeded against such a disease; it is also necessary to indicate the phenomena attending the disease, the part affected, the constitution of the patient, and to point out from attentive observation, or direct experiments, the *effects of the remedy*:"* and again, "we are no longer to speak of pretended specifics, destined, according to ontologists, to destroy and neutralize the vicious condition of the solids and fluids; pathology having demonstrated the absurdity of such an hypothesis, therapeutics must follow the same course, and undergo a similar reform: and its theory in future must be confined to the explanation of the modus operandi of the substances, exhibited for that purpose on the different organs."†

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* Examen des Doctrines Medicales, Prop. cclxxxviii.

† Elements of Therapeutics, Vol. II. p. 95.

To the much agitated question, can a sedative or anodyne impression be made on the system without exciting sanguineous irritation? we cannot even hope to give an entirely satisfactory answer. Affirmed by CULLEN, whose opinion, at one period, swayed a large portion of the profession, it was opposed with as much talent and ingenuity by BROWN and his disciples. Deference to either of these great authorities have ceased to influence us, and we can now calmly investigate their views, unbiassed by prejudice or partiality. The proposition may be rendered more intelligible for the present consideration, by making the inquiry—can we modify morbid excitement in the system without being obliged to create another irritation to overcome the lesion, or in other words, can we subdue excitement by narcotic medications, which involves the practicability of an impression made by medicinal substances on one part, being communicated to another by the nervous tissue? BRODIE, by numerous experiments on animals, has rendered it very probable that many of the narcotic substances display their effects by directly destroying the functions of the brain, and that in large doses, death takes place, in consequence of the respiration ceasing when the functions of the brain are destroyed;‡ thus favouring the position of a direct communication through the nerves. Much confirmatory evidence may be had from the accounts given by MORGAGNI, SPROGEL, NEYSTEN, ORFILA, and others, who have seen cases of poisoning of animals by opium, without being followed by gastritis. On this principle, M. PELLETAN has lately exhibited the acetate of morphine, with iodine, to prevent it from irritating the stomach;* and M. Broussais has discovered that asparagus possesses the property of calming excitation of the heart, without irritating the stomach.† What traces are left after death from hydrocyanic acid to equal the entire destruction of the vital organization? And what other conclusions can be drawn from the experiments of the Abbé FONTANA with the venom of vipers, who uniformly found it to produce death by stupifying the nervous system? Professor HAHNEMANN, we are informed by a gentleman recently from Germany, has demonstrated by direct experiments, that no virus affects the system, unless it be placed in contact with nervous fibre.‡ Every practitioner is acquainted with the fact, that a decoction or cataplasm of Nicotiana tabacum, when applied to the epigastrium, excites emesis: and on the contrary, that laudanum applied to the same surface subdues spasm and alleviates pain in the stomach, without producing sensible irritation, or having time to reach the interior through the process of absorption. A single drop of prussic acid, we are told by MAGENDIE, placed in the throat or the ear of the most vigorous dog, destroys life instantaneously.§ Does absorption take place so rapidly? Even when applied to the outer inorganic layer of the skin, we are informed by Orfila, it produced death in a professor at Vienna.‖ The modus operandi of the nux vomica, affords, perhaps, the best evidence of the influence of narcotic remedies on the nervous tissue. A single grain of this is also sufficient to destroy a dog of considerable size.¶ When the dose is much larger, says M. SEGALAS, the animal appears to perish entirely from the action of this substance on the nervous system.** "If an animal be touched whilst under the action of this substance," Magendie asserts, "it experiences a shock, and this takes place every time the contact is renewed. On dissection," he adds, "no lesion is discovered which can indicate the cause of death."†† We do not deny that absorption can or does ever take place, for we are familiar with the experiments of M. Collard de Martigny on cutaneous absorption, the results of which go to controvert M. Fodera's theory of mechanical imbibition or infiltration,* and directly oppose that of MM. Seguin and Magendie; and are perfectly aware that endermic medication has of late become a popular mode of administering many active articles. Stimulated by the efforts of MM. Chiarenti, Alibert, Dumeril, and others, in operating with remedies by means of cutaneous frictions, MM. Lembert and Lesieur were led to apply medicines to the denuded skin. But are we to attribute the success of these emplastro-dermique to the slow absorption of a few particles of the medication, or to an anodyne impression made on this very tender surface, and communicated by sympathy to the seat of irritation? How do the particles of the medication restore the congestion when they come in contact with the disorganized structure? is a question much easier to propound, we are sure, than to answer. And until we arrive at some more satisfactory explanation, it is not only our privilege, but our duty, to suggest some proposition which may tend to elucidate the subject. Admitting that it is absorbed, which M. de Martin affirms with much confidence, from his experiments,† but which, to us, do not appear sufficiently conclusive to place the question beyond doubt, we are not disposed to let go of the substance even when we do get it into the blood, until we understand its precise modus operandi. Have we any assurance that the capillaries will convey the medication directly to the seat of irritation? Is it not much more probable, nay, is it not certain, that all articles absorbed by the venous radicles or lymphatics, from any surface, are carried into the veins, thence to the heart, and then distributed to every part of the system? Is it supposed that a *third* or a *fourth* of a grain of the acetate of morphine can medicate the whole mass of blood, and can we expect much benefit from the small atom that reaches the affected part? Among the astonishing effects related of the endermic medications, Dr. Gaspard Cerioli, of Cremona, records a case of traumatic tetanus, which was ineffectually treated by venesection, warm bath, frictions of camphor and opium, and a third of a grain of the acetate of morphine internally every second hour, (the best way certainly of getting it into the blood.) The symptoms still became exasperated, and on the 27th of October the morphia had to be suspended. November 1st, after removing the cuticle with a blister, a *fourth* of a grain of the acetate of morphine in fine powder was applied to the part. The same quantity was also applied in the afternoon. "The effect produced," the writer says, "was remarkable; in a few hours the clonic spasms were weaker, the motions of the jaw more free, the contractions of the lineaments of the face became relaxed, the pains of the neck and back had diminished sensibly, the sufferer enjoyed a tranquil sleep with slight occasional interruption."* In this case the morphine had every opportunity of entering into the blood, if medicines in their original state have admittance there, without displaying any effects on the disease; but when applied to the nervous tissue of the skin, the happiest results followed. Would it not appear much more plausible to admit the principle of sympathetic action, modifying nervous exaltation, on which irritation depends, and to which the operation must ultimately be traced, after conceding all that the advocates for absorption demand? Be this as it may, M. Bégin very properly suggests, that, "when operating by the emplastic method, we ought to take into consideration the irritation produced on the skin by the blisters. These topics alone," says he, "have often been sufficient to cure nearly all the diseases enumerated by MM. Lembert and Lesieur; and we are not to place too much reliance on the efficacy of diuretics, sudorifics, and especially of incisives administered in this way. This observation is not intended to operate against a method which is still scarcely known;† my object is to engage the attention of those who may resort to it, to analyze its effects, and to guard against attributing to absorption of remedies, what might perhaps be the result of the irritating and revulsive action of the blister."‡ Ice applied to the hypogastric region, or standing with the bare feet on cold substances, excites the bladder to contract, and discharge its contents: again, when we apply ice to the head, do we expect it to be absorbed, and be carried through the parietes of the cranium, or do we look for the salutary influence to an impression made on the integuments, and reflected upon the internal organs through the nervous tissue? No one would think of ascribing it to the absorption of cold and moisture, yet the same effects obtain. We do not wish to appear fastidious in our opinions, but we are tenacious of a right understanding on this subject, and have no other ambition than that of drawing fair deductions from

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* Traité de Thérapeutique, t. I. p. 292. † Ibid, t. II. p. 733.

‡ Philosophical Magazine, August, 1811.

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* Amer. Journ. Med. Sci. Vol. IV. p. 492.

† Annales de la Médecine Physiologique, July, 1829. See this Journal, Vol. V. p. 499.

‡ We have not had an opportunity of consulting his "Fragmenta de Viribus Medicamentorum, &c. &c." which we suppose contain the experiments.

§ Formulaire. ‖ Toxicologie. ¶ Magendie's Formulaire.

** Journ. de Phys. Experimentale, Oct. 1822. †† Magendie's Formulaire.

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* This is still a disputed point; and if not inscrutable, as M. Hutin, in his Manual of Physiology asserts, requires much investigation and elucidation to settle it. The recent experiments of M. Dutrochet of France, and Dr. Togno of this city, on endosmose and exosmose, seem to confirm the views of Fodera.

† Revue Médicale, Sept. 1827.

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* Amer. Journ. Med. Sci. Vol. V. p. 501.

† 1825.

‡ Traité de Thérapeutique, t. I. p. 135.

the evidence before us: and as we conceive it to be the duty of every writer to retract his opinions when convinced of error, we have no hesitation to declare that we are perfectly willing to waive all our predilections, whenever further investigations and facts establish a more satisfactory explanation: therefore we heartily subscribe to the sentiment of **Marcus Aurelius**—*Ει τις με ελιγξαι, και ϖαραστησαι μοι, ὁτι ουκ ορθως υπολαμϐανω η ϖρασσω, δυναται, χαιρων μεταθησομαι. ζητω γαρ την αληθειαν υφ' ης ουδεις ϖωποτε εϐλαϐη. βλαπτεται δε ὁ επιμενων επι της εαυτου απατης και αγνοιας.*[*] [*If any one can convince me that I am wrong in any point of sentiment or practice, I will alter it with all my heart. For it is truth I seek, and that can hurt nobody. It is only persisting in error or ignorance that can hurt us.*" We do not think it necessary to enter into any examination of the doctrines of **Rasori** and **Tommasini**, whose views of counter-stimulus seem to accord with the position we assume; believing that many of the substances which are said to possess this property act on a very different principle, that of revulsion. Should future investigations prove it to be sympathetic action, exhalation, or absorption, we shall be perfectly satisfied; at present it cannot be attributed to any process but the electricity of the nerves.

Of the changes in the nerves from these medicines, (anodynes,) says Dr. **Parr**, we know little. It is highly probable, he continues, that an active fluid analogous to the electrical or galvanic, gives them their peculiar power;[†] and this opinion will be much strengthened, should a repetition confirm the very extraordinary experiments of **Weinhold**[‡] and **Beraudi**.[§] M. **Montault** informs us[||] that he was relieved of paralysis of the face, from an affection of the portio dura by galvanism; and it is on this principle, subtracting the electric fluid, that acupuncturation is performed; but we do not wish to conceal that much contradiction exists as to the operation of the metallic needles. M. **Beclard** ascribes all their curative power to the stimulation which the punctures excite.[¶] We have much proof to the contrary, and more to their good effects in tic doloureux, sciatica, and other neuralgic affections, by **Cloquet**, **Recamier**, **Pelletan**, **Morand**, **Bergamischi**, **Earle**, &c. &c. **Chevalier Sarlandiere** however, who has investigated this subject, denies the magnetic vir-

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[*] Lib. VI. § 21.

[†] Medical Dictionary, art. Anodyne.

[‡] Amer. Journ. Med. Sci. Vol. III. p. 191.

[§] Ibid, Vol. V. p. 481.

[||] Revue Médicale, August, 1829, as quoted in this Journal, Vol. VI. p. 503.

[¶] Dictionnaire de Médecine, art. Acupuncturation.

tues of the needles, and points out the inefficacy of applying electricity to the surface only, proposes the combined agency of simple acupuncturation and electricity,[*] and reports a success commensurate with the magnitude of his remedy.[†] But to return to the therapeutic agents under consideration. MM. Edwards and Vavasseur assert, that "narcotic remedies, including *stupefacients*, sedatives, and hypnotics, are distinguished from all others by the special and primary influence they exercise on the nervous system, and principally on the brain; an influence characterized by a diminution of activity, and even momentaneous interruption of the functions of these important organs."[‡] "The greater number of cases in which medications extend their primary impression to other parts," says M. Bégin, "are unquestionably owing to the sympathetic relations which unite all the organs of the living body, and make them participate in the affections of one another. The nerves are the immediate agents through which these take place."[§] And again—"we must return to the principle that all medicinal substances act in the same manner as all the other modifying causes which surround us. If by their agency the vital actions resume their normal state; if the composition of the liquids and solids be modified; if the tissues acquire growth and vigour, and have a more active nutrition, these effects are the result of the impression made by therapeutic agents on the living organs, and the new direction imparted to their actions, which seem to enforce the belief, that the presence of medicinal particles in the blood, bile, urine, lymph, and other recrementitious and excreted fluids, are but secondary phenomena, and have no influence on the final result of the medication."[‖] This is the doctrine of our distinguished countryman, Professor Chapman, who promulgated and supported these principles with great zeal and ability nearly thirty years since.

The foregoing considerations induce us to believe that impressions can be made on the external surface, to modify nervous excitement, and consequently to controul, in a measure, the vital actions of the different organs. This is emphatically asserted by M. Bégin, which we give in his own language; and is sustained by the highest authorities of the anatomico-pathological school. "Toutes les surfaces sensibles du corps humain présentent au médecin des vois ouvertes pour modifier les actions vitales du système nerveux, et augmenter, deminuer ou régulariser l'exercice de ses fonctions."* The skin affords one of the most advantageous sources of operating with emollient and anodyne medications. The cutaneous tissue, says M. Bégin, is an inextricable compound of red and white capillary vessels, intermixed with nervous ramifications, expanding in papillæ at its surface, and of sebaceous cryptæ, connected by cellular tissue, and covered by an inorganic thin and permeable layer. It contains secretory follicles, and is endowed with veryactive, variedand energetic vital powers. It is connected by very intimate sympathetic relations to the lungs on the one side, and to the gastro-intestinal membrane on the other—it is also united to the genital and urinary organs, and to the brain, by other sympathies, which, although not so close, become much increased by disease.† Broussais informs us that—

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[*] This was previously suggested by M. Berloiz, vide Mémoire sur l'Acupuncture, 1819.

[†] Mémoires sur l'Electro-puncture. See this Journal, Vol. VI. p. 478.

[‡] Manual of Materia Medica and Pharmacy, p. 317. Togno and Durand's Translation.

[§] Traité de Thérapeutique, t. I. p. 108.

[‖] Ibid, p. 138.

> "The tissues, which may be considered as the natural first movers of sympathies, are those in which the nervous substance is found of a pulpy appearance, intermixed with capillary blood-vessels, and other vessels which contain albuminous and gelatinous fluids; these are the skin; the senses of the head called the external senses; and the mucous membranes, which are the internal senses."‡

The modern practice, predicated on the system of the tissues, presents incontrovertible evidence of the efficacy of emollient and anodyne medications in modifying morbid action: which is repeatedly attested in the writings of Broussais, Goupil, Boisseau, Begin, &c. &c. Our object is to direct attention to some of the laws of the animal economy, and the effects of certain remedies, rather than to narrate cases: and it is a favourite practice with us, in discussing subjects, to fortify our opinions with the facts and observations of established authorities: we, therefore, shall not consume time, at present, with our experience. To the writers already referred to as affording a detail of the application of emollient fomentations, and anodyne medications, who concur in their usefulness in the pulmonic and abdominal diseases, we will allude to a few others, in as brief a manner as possible, hoping thereby to excite investigation, and a fair trial of these remedies. In the obstinate disease called the colic of Madrid, which M. Coste attributes to the violent and penetrating cold of the night, which in Spain forms a particular contrast with the day, emollient fomentations are esteemed one of the most valuable applications. M. Fourier Pescay, who is distinguished in the cause of humanity, considers emollient applications, after local bleeding, as the most efficacious means of diminishing the violence of the symptoms of yellow fever, plague, and typhus. M. **Gama**, the distinguished surgeon of the Military Hospital of Strasbourg, has always succeeded by leeches and emollient cataplasms, in preventing the necessity of an operation for sarcocele. M. **Alibert** relieved a woman afflicted with a violent cough threatening suffocation, by having the room completely filled with vapour arising from a decoction of marsh mallows, and other emollient plants. M. **Desruelles** strongly recommends the inhalation of vapours, and the application of emollient fomentations, in croup. To these might be added the experience of MM. **Fallot**, **Lallemand**, **Marechel**, **Treille**, and a host of other practitioners, were we disposed to extend this article; suffice it to say, that they are now resorted to in almost every case of internal or external irritation, and so happy have been the results of the Parisian practice, that M. Bégin, says—

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* Traité de Thérapeutique, t. II. p. 658. † Ibid, t. I. p. 171, 172.

‡ Examen des Doctrines Médicales, Prop. XIII.

> "It has been proposed to fill the whole of the vagina with linseed flour, boiled in the decoction of marsh mallows. These attempts," he adds, "at extending emollient medications to an organ of so much importance, and whose diseases are always so obstinate, deserve all attention of medical men. It is to be expected, that when timely and methodically administered, the debilitating treatment will henceforth be able to prevent the development of the cancerous affections of the uterus; the issue of which has baffled all the efforts of surgery, and generally proved mortal."*

In our country we have the testimony of the lamented **Godman** to the astonishing effects of the snuff plaster in arresting the progress of cynanche trachealis, and of the extension of the same medication by Dr. F. **Vanderburg** in many affections of the chest, and other parts of the system.† In the ninth number of this Journal, we communicated a case of retention of urine, from enlargement of the prostate gland, successfully treated by cataplasms of the datura stramonium, and we have much reason to recommend the hop poultice in many of the anginose affections, from having seen some of the most distressing symptoms in children allayed by it.

It may be urged that the warmth of the emollient applications produce a stimulation or determination on the surface. Apart from all speculation on the subject, experience has shown, that whatever revulsion they occasion, it does not amount to sensible irritation; nor can the efficacy be ascribed to any active derivative process. Broussais distinguishes betwixt the action of remedies operating on these principles. "The warm bath," says he, "cures peritonitis only by creating a revulsion in the skin, and the disease becomes exasperated if this fails to take place; and in this way the warm bath often renews peritoneal inflammation, which had been arrested by the application of leeches. This is not the case with emollient fomentations."* MM. Edwards and Vavasseur in explaining the operation of these medications, say, that "emollient fomentations and poultices, which are applied to the abdomen, when some of the organs in this cavity are inflamed, at first induce a relaxation of the skin, and afterwards gradually extend their action to the parts more deeply situated.† And M. Bégin affirms that "the long-continued application of emollients may sometimes induce a state of relaxation and languor in the tissues, which will often impede the normal exercise of their functions, and call for the use of corroborating and tonic medications."‡

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* Traité de Thérapeutique, t. I. p. 204.

† Amer. Journ. Med. Sciences, Vol. II. p. 480.

We do not wish to be considered as opposed to the application of revulsive remedies. Judiciously employed, we esteem them one of the most salutary modes of operating in chronic irritations, and frequently, under particular circumstances, are to be resorted to with confidence in acute diseases. It is against the abuse of these irritants we declaim, and essay to point out a less prejudicial practice. It is only by the prudent management of the stimulating and sedative medications that we can modify and regulate the abnormal movements of the different organs, and restore an equilibrium of action in the animal machine, which is health. We will take another opportunity to point out the circumstances which indicate, and the manner of operating with the different external medications. In conclusion, we would merely remark, that to effect a good purpose with emollient and anodyne medications, much perseverance and assiduous attention are required; but the reward of the physician will be the happy consciousness of meliorating the sufferings of his confiding patient, with the least inconvenience to him, and of contributing to the support of a more rational practice. We would not encourage tampering with disease, but we do think it as much our duty to avoid giving our patients unnecessary torture, and protracting their final recovery, as it is to treat them by prompt and energetic remedies.

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* Examen des Doctrines Médicales, Prop. cccxiv.

† Manual of Materia Medica and Pharmacy, p. 29.

‡ Traité de Thérapeutique, t. I. p. 120.

ART. VII. *Case of Amnesia.* By S. HENRY DICKSON, M. D. Professor of the Institutes and Practice of Medicine in the Medical College of South Carolina.

IN May, 1829, I was requested to visit in consultation, J. W——. He is a man of short stature, ruddy face, full habit, about fifty-five years of age, cheerful, talkative, quick, impatient; has been engaged in mercantile business: lives freely, but not intemperately. Some weeks previously, having eaten a very hearty dinner, he was seized in the afternoon, while occupied at backgammon, with a degree of mental confusion, occasioning him to rise from the table hastily, and walk about with his hand on his forehead in silence, and with an air of entire absence. This abstraction increasing, soon amounted to a total insensibility to external objects. A physician being sent for, he was bled largely, and gradually recovered, in a partial degree, his faculties. His situation seems to be in many respects unusual, and his case presents some curious pathological phenomena. He retains his muscular strength in great measure unimpaired: there is indeed no more emaciation or debility than must of necessity follow from restrictions in diet and remedial depletion. His appetite is good, and his digestion for the most part easy and natural. His sleep is composed, and not morbidly profound. His memory, and more especially his power of recollection, are affected. He is at a loss for words, but not always, for he will occasionally pronounce a whole sentence without hesitation. He seems to have lost the conventional connexion between *an idea* and *the word* denoting it. I infer this from the following circumstances. He gives us to understand that he always remembers *the thing* aimed at, though he cannot express it. "I *know* a great many things, I cannot *speak* any thing," is a phrase often repeated by him. He reads much, but says he does not understand, nor does he, in reading aloud, utter the correct words with certainty. He was very fond for a time of copying. He wrote a good hand, and seldom failed to write the proper word, but declares that this also he did without understanding. The difficulty seems to be in both these instances, that he is unable, from extreme deficiency of retentiveness, to remember the first part of a sentence long enough to connect it into meaning with the conclusion. Some words he always failed to recollect. He was fond of molasses, and used it frequently with water to quench his thirst, but he could never remember the word, nor could he be brought to utter it, or take it from another person by suggestion, however frequently and distinctly repeated.

He carried the word written out fairly on a card in his pocket, and would make from time to time the most strenuous efforts to order his servant to hand him the article, but in vain. He was much chagrined at this. "Why," said he to me, "can I not speak that word? When my friends visit me, I can order for them wine, ale, porter, cider, brandy—but this I cannot speak."

He fancies, when he does not comprehend what is said to him, that he does not hear it, and complains much of this supposed defect. But that his hearing is perfect is proved by a thousand instances of acuteness in this particular. He hears a distant sound, the ringing of a bell, the striking, and even the ticking of a clock, as well as any body about him.

He mistakes sometimes the names of his daughters, calls a day a week, drops a syllable, uses a word entirely inappropriate, or a set, though very rarely,) of unconnected syllables, and becomes confused under a consciousness of his mistakes. This is apt to render him low-spirited; he is not uniformly so however, he still loves a joke. While under a course of medicine, his wife at dinner happened to forget something which she wished to tell him; rising hastily from the table, he ran off for a powder to give her "*to make her remember.*" This he told me afterwards with great glee.

It is further remarkable that his perception and recollection of numbers have always been clear, at least comparatively and notably so. He reads and speaks of numbers accurately An advertisement being placed before him, "——'s Lottery Office," he could not read the name, though, as he exclaimed impatiently, "he knew the man well!" but the list of prizes ranged beneath the caption he could run through fluently. He would remind his friends of the precise dates at which notes in his possession were to become due, and make all the necessary calculations concerning them; and this at a time when he could not write his own name unless from a copy, nor with uniformity utter it when shown him written, nor remember it regularly when he wished. A date he could at any time make out, but not always the month referred to in words.

In the above detailed case, it is not easy to refer the various phenomena presented, each to its own proper cause and origin. The *perception* of objects seems to be irregularly defective—not, however, from any lesion of the external senses, but from something peculiar in the condition of the brain. The patient, however, is unwilling to allow any such defect of perception as is here supposed. He contends that "he cannot remember—he cannot speak what he does perceive and understand." The only exception which he is ready to acknowledge, is found in the sense of hearing, which he believes to be dull, but which is in reality abundantly acute. Shall we account for all the apparent *defect of memory* by this imperfect perception? The *less vivid* the impression made on the material organ of thought, the *less permanent* it will be of course. How then shall we explain the difference between the various sets of objects presented to him. *Words* were most frequently forgotten or mistaken. *Numbers* almost always promptly comprehended and recollected. Is it because the idea of a number—the impression made by it on the brain is more intense—more clear—more deeply stamped than that of a word, as a figure of definite form, and bounded by lines and angles of mathematical precision, is more distinctly and easily remembered than an uncertain shape or a shadowy outline.

Charleston, Nov. 1830.

Art. VIII. *Observations on Delirium Tremens.* By Samuel Jackson, M. D. of Northumberland.

There is not a more fruitful source of perpetual error than a mistaken diagnosis: it confounds the physician, destroys the patient, and is finally transmitted through the press to the confusion and destruction of multitudes through many generations. To this source, it may be fairly presumed, the various contradictory reports on the efficacy of many therapeutic methods, are to be mainly attributed, as also that principal opprobrium of the medical art, its uncertainty and apparent caprice. Having sometimes failed in our own diagnosis, we shall endeavour to point out the reason of this for the benefit of others: and if we make it appear that physicians of the highest reputation have equally blundered in similar cases, our little paper will prove of the greater utility.

Where we learned the true principles of treating delirium tremens is not now recollected: we brought it into practice from the University, and it was therefore most probably derived from the lectures of Dr. Rush. Certain it is, that some of these unfortunate *tremblers* were among our first patients, and we clearly recollect having treated them successfully with opium, camphor, wine, and nourishing diet. One case, to which we were called in consultation in the spring of 1813, had been induced in an habitual drunkard by abstinence and a copious epistaxis. The physician in attendance, though recently and regularly educated in the University of Edinburgh, did not understand the disease: hence he had blistered the patient's whole head and a large portion of his back without any benefit. This patient was soon cured by opium, beef soup, and wine. Since this time we have treated certainly far above two hundred cases of this disease, some of them very frequently occurring in the same persons. Of these, whatever the exact number, we have lost but three, of whom, one had been dyspeptic for many months: the second was found, by Dr. Rodrigue and myself, to have had *ramollissement* of the stomach to such a degree that about eighty square inches of this organ were totally gone, except the peritoneal coat, and this was so rotten as to be easily torn into shreds with the slightest force; the third I lately attended in consultation with Dr. Robins, of Sunbury, and was not able to account satisfactorily for his unexpected death.

Such has been our experience, and such our success in this disease, both which we have thought it necessary to set forth, in order that what we have to say on the subject of diagnosis, which is the origin and reason of our paper, may prove of the greater weight and authority. That we confounded two very different diseases, and mistook simple intoxication for delirium tremens, in the few cases we are about to relate, and in them only, we are entirely satisfied, since, with the exception of these few, and the above-mentioned three that proved fatal, one method of treatment has proved successful in all the rest, and was that which has been approved by the best authorities. Nor are we ashamed thus to acknowledge, that after eighteen years practice, the *juvantia et lædentia* are often a necessary part of our diagnostic apparatus, and highly useful in determining our course in the treatment of many diseases.

In the history of the following cases their general aspect must be taken, and their general course of treatment, all minute points must be omitted, as we took no written memoranda; the reader may, however, rely on what we shall venture to relate, as it was all most carefully stored in the memory, and revived by frequent reflection and conversation. In fact, the cases, *so far as they relate to our present purpose*, are as fresh in the mind as if they had passed but yesterday.

Case I.—A man, twenty-four years old, of the sanguine temperament, who had been long in the practice of taking strong drink to excess, but seldom to the point of complete ebriety, suffered some debilitation from cholera morbus, and from a consequent temporary omission of his favourite beverage. At the same time also the prickly heat struck in, from which he suffered some irritative fever; he became delirious, and in this state of his disease I was called to him for the first time. His family had been giving him spirits, in order to support his strength, and under the opinion that a sudden change to sobriety might prostrate him below the point of reaction.

He now exhibited all the characteristic symptoms of delirium tremens, and knowing as we did the tenor of his life, and his recent abstinence, there appeared no necessity for any further inquiry. He was in the greatest alarm lest the imaginary negroes, whom he saw in every part of the house to which he ran for protection, should instantly destroy him; his eyes were wild and prominent; his motions the quickest imaginable; he had no fear of the real persons around him; his pulse was full, frequent, and imparted a sensation of tension, *as it very often does in this disease;* he trembled in all his limbs, but whether it was from fear or disease is not certain; he was slightly feverish, but in a constant perspiration, probably from fear, or from his violent exertions; he had also some little tonsillitis.

This patient was treated with large doses of laudanum, and was allowed wine with nourishing diet; but he became still further delirious, and after passing three times twenty-four hours without sleep, we determined to try the method of treatment first recommended by Dr. Klapp. Tartar emetic was therefore given him in frequent doses till it nauseated and purged him freely; all stimulus was abstracted; no more laudanum was given; the patient very quickly became quieter, and gradually, but steadily, recovered without any soporific.

That this was not a case of delirium tremens we have lately inferred—partly from the history of the case, and partly from the method of cure. In the first place, he did not become delirious till, in his state of *direct* debility, they had given him ardent spirits, of which a very small portion, in this very highly excitable state, was sufficient to create a certain abnormal exaltation in the brain, and this was but too carefully sustained by the continual administration of laudanum and spirits. The repulsion of the prickly heat might also have had some agency in determining the character of the disease. Had this man been about to fall into delirium tremens, the spirits they gave him ought to have prevented this evil, and that he took a sufficiency for this purpose there can be no question. This man has been an habitual drunkard ever since, now more than seven years, and though he has sometimes abandoned his spirits for a few days, he has never since been affected with delirium tremens; and certain it is that he never had been before. True, his delirium had apparently all the characteristics of the species *tremens*, and such we considered it after the cure was effected; but further experience has since convinced us of error, as will be more clearly shown in succeeding cases.

Case II.—A man, of the lymphatic temperament, thirty years old, whom we had often successfully treated for this disease with opium and its various coadjuvants, came to my door in great agitation; his countenance wild; his whole body in a tremor; his pulse hurried and full; no evident fever. I thought of no other disease than that of which I had often cured him, and therefore determined to try the method which I had recently used with such marked success in the above case. We gave him six grains of tartar emetic at one draught, and promised to call upon him in about an hour. Upon arriving at his house we found that he had not returned, nor did we see him again till the next day, when he met me in the street with a smiling countenance, being highly pleased with the success of the remedy. After having taken the tartar emetic he had gone to the river bank, where he was soon overtaken with an artificial cholera morbus that continued the greater part of the night, and the morning found him, "*mens sana in corpore sano,*" a sound and rational man. He was very thankful for the prescription, which had, as he well knew, cut short his debauch, and, as I now understand it, saved him a fit of delirium tremens in the end.

In this case I was most clearly deceived in my hasty diagnosis, for, upon inquiry, I found that his spirituous draughts had not been diminished; and an almost total intermission had always been, as it always is, a necessary preliminary to his accustomed delirium tremens. In this case the maniacal hallucination was apparently that of the real disease with which he had so often been afflicted, though it is possible that a more deliberate examination might have unveiled the mystery. And here we are not unwilling to insinuate that others, who, in the hurry of business, have treated the disease successfully with depletion, and particularly with emetics, may have been equally deceived. Let them receive this in the spirit with which it is written—surely no human being is willing to be considered infallible.

Case III.—A young man of the sanguineous temperament, was supposed to be affected with delirium tremens, under the care of Dr. Price of Sunbury, and I was called in consultation after the first day. This patient was continually beset by some imaginary armed ruffians, who he feared were seeking his life: his bodily activity was surprising, and his mind was not quiet for one moment, day or night; he was tremulous without the least interruption of his agility; of his pulse I have no recollection. He insisted upon having spirits, or rather he would take nothing which did not contain them; and as it was supposed, according to vulgar prejudice, not safe to relinquish this draft at once, his family continued to gratify him, notwithstanding our repeated remonstrance. Laudanum in the accustomed dose, which with us had been from one drachm to four, appeared to render him worse, and Dr. Price told me that he had given him forty grains of dried opium, within the space of a few hours, without the least soporific effect. The doctor then recollected that on a previous and similar occasion, he had cured him by a large dose of calomel and jalap; hence it was determined to restrain him more carefully from all kinds of stimuli, and purge him freely. This was done with immediate advantage, and the same prescription being continued, he perfectly recovered in a few days, without the use of any soporific or stimulus. The real nature of this case will appear more clearly in the following.

Case IV.—The above patient suffered the same disease after a few months, and this time he fell under my exclusive care from the first. With respect to delirium, he was affected precisely as before: but inasmuch as he had *not* abandoned his spirituous drinks entirely, as his pulse was full and strong, his face flushed, and his eyes rather heavy than wild, I suspected a deviation from the ordinary disease. Laudanum, however, was tried in large doses, but without any soporific effect—on the contrary, there was every reason to believe that it aggravated the disease. I now succeeded in confining him to a dark room, made at last a successful effort in debarring him from spirits, and as I became suspicious at last that instead of delirium tremens, it was a real case of continual intoxication, I took ten ounces of blood from his arm, ordered buckets of cold water to be poured on his head, abandoned the opium, gave grain doses of tartar emetic till puking and purging supervened. In twice twenty-four hours he was by this means perfectly restored in every apparent respect. So far this was plainly a case of real intoxication.

Had I now been prudent enough to put him under the influence of moderate doses of opium, I should have saved myself no little trouble, for no sooner was he fairly rid of his temulence, and as I thought perfectly restored, than a real delirium tremens supervened. I was called in the morning and told that my patient had spent the greater part of the night in running over the roof of the house, in order to avoid the sprites that continually haunted him. He had not taken one drop of spirits, and yet to all human eyes *the mere delirium was the same as before.* He now took laudanum in doses of one, two, and sometimes three drachms, with an abundance of lupuline, and nourishing diet without either spirituous or fermented liquors. Under this treatment he became quieter and obtained short, unrefreshing slumbers, but it was not until he had taken laudanum to a very alarming amount that he obtained a salutary sleep. It required eight days to perfect the cure, but though slow, it was happily accomplished, as he has scarcely tasted ardent spirits since that time, now more than three years.

All these cases then, except the sequel of the last, were cured by the very means of curing intoxication; they were all rendered worse by the only laudable means of treating delirium tremens; therefore, since they must pertain to either one or the other of these diseases, it may fairly be considered, without further evidence, that our first diagnosis was utterly erroneous. Whether this unusual similitude of the symptoms to those of delirium tremens, was owing to some constitutional peculiarity, or to some accidental and uncommon association in the diseased economy, cannot of course be ascertained. It is possible that some more penetrating genius might have learned from the symptoms the true states of the system, without resorting to the *juvantia et lædentia*, and particularly in the fourth case, in which I have said the pulse was full and strong, the face flushed, the eyes rather heavy than wild; but in all the others we saw nothing which could have persuaded us that they laboured under intoxication.

Let not the reader, however, suppose that we consider the *juvantia et lædentia* as an infallible criterion of the character of all diseases, since many have been cured by contrary remedies; but on the present occasion it may be safely inferred, that a state of the system which is almost infallibly remedied by very large and almost frightful doses of laudanum, from one drachm to five times this quantity every six hours, is very unlikely to receive equal benefit from full and repeated doses of tartar emetic.

It is of immense importance to the credit of medicine, as well as to the safety of patients, that all contradictory therapeutics should be philosophically reconciled. If we can show the way of doing this with respect to delirium tremens, it is enough; let others pursue it who have more leisure, greater abilities, and more liberal opportunities of consulting books, than falls to our unhappy lot, in this ultima thule of medical literature. For in us it would be considered as extremely audacious, to suppose for one moment that some distinguished physicians could have been mistaken in the disease on which they have written as delirium tremens, and yet there is no other means of reconciling their accounts with truth and nature. If the disease is to be cured by tremendous, and what *a priori* would be considered as murderous doses of opium—if it can be cured as it often has been by brandy alone—if it is almost certainly fatal in most cases without this stimulation—surely that is not the same disease which some have cured by large bleedings and other evacuants, by an artificial cholera morbus, or by shutting up the patient in the dark without either food or medicine.

Violent diseases are not cured with equal success, if they are cured at all, by contrary and violent methods; as soon would I believe that fire could be extinguished as certainly by gunpowder as by water. True, many diseases are cured by contrary practice, but not, as I have already said, with *equal success*, not χατα φυσιν as Hippocrates says, or according to the nature of the disease, and the facilities afforded by the state of the system, not *physiologically*, as our most eminent men are wont to express it. But even in mild cases, a natural method is best: for though an incipient pleurisy may be cured by a puke, a gentle case of dysentery by half a dozen outrageous cathartics, a slight fever by a severe flagellation, and a gentle case of delirium tremens by a puke, a purge, or a flaggon of brandy, yet these are not the methods which suffering nature requires, nor are they confirmed by laudable experience. Thus it is, there are numerous ways of curing nearly all curable diseases; if it were not so ordered, it is a fact, that many physicians would strew the earth with their dead; but the question is not merely to remove a disease, but to do it as CELSUS says, *tuto, celeriter, et jucunde*, according to some natural method which shall prove applicable to all its grades, and which may restore the patient by the quickest, safest, and pleasantest way. If then a method can be produced which holds good through the whole disease, in all its degrees of comparative mildness and severity—this surely is physiological, and calculated to ascertain its intrinsic nature.

Now it appears to us that nothing can be more congenial to the disordered state of the system in this disease than opium. Let us take a mild case, now clearly within our recollection, and consider it well. A man who had long been too free with his bottle, and afterwards furnished the above mentioned case of ramollissement of the stomach, quit his beverage for a few days, in consequence of a fever, but no sooner was he relieved of this than he fell into delirium tremens. It proved to be a mild case, and the patient was quite sensible of his situation, as he had often had the disease before, and had seen it in others; therefore he took opium, wine, bark, and porter, with such effect that he was soon restored. On quitting his opium too soon, he relapsed, upon which he was desired to take small doses, with an abundance of lupuline. This having no effect, he passed the night without a moment's sleep, but so sensible of his situation that he spent the time in laughing at his own ridiculous imaginations, and in cursing the inefficiency of the lupuline, which I had promised should supply the place of opium. The next morning the sovereign specific was given more freely, the spectres vanished, and salutary sleep supervened the following night.

Now, if in mild cases this remedy is found to be so very salutary, and so perfectly specific, if in severe cases it is only necessary to increase the dose, and if in the worst we can give four ounces of laudanum in twenty-four hours with safety, and astonishing success; surely this, or something of similar operation is nature's remedy, and the providential medicine in this wayward disease. All this is so clearly set forth, so soundly argued, so inductively established by Dr. COATES in his elaborate essay, in the N. A. Med. and Surg. Journ. Vol. IV. that on this point we have only to refer to his superior authority.

We have candidly acknowledged in the above pages that in four cases we made an erroneous diagnosis; we shall now endeavour, in order to make our paper the more useful, to show that others have probably fallen into the same deception. Dr. PORTER, in his notes to ARMSTRONG on the Brain Fever of Drunkenness, says that he has bled in delirium tremens to the amount of seventy, eighty, and several times to one hundred ounces in three or four days; he even speaks of drawing forty ounces at a single bleeding, without having ever had occasion "to regret this sanguinary measure." Now let us inquire what is there in this disease that can justify such liberal effusions of blood and strength. It generally occurs in those who have been, at least in some degree, broken down by intemperance, and that too after they have lived some days on stimulants rather than nutriment; even their stimuli are at last abandoned, and the coming delirium is generally preceded by long-continued vomiting. Whence then the necessity, and whence even the capability of tolerating such liberal profusions of blood? As to necessity, there can be *none*, for every one must have observed that the delirium appears to arrest the progress of any other disease; we have seen it cut short a pleurisy more quickly than the lancet and blister. Perhaps it may not appear too ontological to maintain that the disease is totally distinct from inflammation, and that the lancet can have no controul over it whatever. But independent of all argument, general experience has proven that such treatment is destruction to the *deliri trementes*, and hence the doctor's fortunate juvantia clearly show that it was not the disease he presumed it to be, and thus he proved himself a worthy disciple of his illustrious master, Dr. Rush, despising names, but carefully regarding the real state of the system.

But it will be inquired—do we believe that all those cases which have been successfully treated by emetics as delirium tremens, were cases of pure drunken excitement? Certainly not—far be it from us to aver that the disease may not be cured by emetics, purges, or even by the unassisted operations of nature; but such as are thus cured, are in general mild cases, the morbid associations of which the concussion of an emetic or purge may easily break up, as a fright has been known to cure the gout, and a fit of laughter an ungovernable priapism. All we contend for is this—that they will not cure the severest cases, and particularly in broken constitutions, whether from chronic intemperance or recent and co-existing disease; but on the contrary, that all severe cases which are thus cured, are really nothing but gastric irritation, radiated to the brain, or more generally, plain intoxication itself. All those cases which Dr. Klapp has related in the *Medical Recorder, Vol. I.* may be thus satisfactorily construed.

When the doctor wrote on this disease, it was but little known, and moreover the radiation of phlogosis from the stomach to the brain was not ascertained as it is at present; hence we may conclude, without the least arrogance, and without at all impugning the skill of that able practitioner, that some of his cases were not delirium tremens. In almost every instance related by him in the *Medical Recorder, Vol. I.* some gastric irritation is shown to have existed, and that when this was removed, the disease of the brain ceased.

As to those cases related in the *Eclectic Repertory, Vol. VII.* it is most probable that they were all delirium tremens, but their ready cure can be accounted for on the principles above stated; they were probably all most fortunately adapted to the salutary operation of emeties, and such another rapid succession of emetico-curables might not soon recur. It certainly has not occurred in the practice of others, though an occasional patient has been restored by this method. Even the doctor himself has to acknowledge, that in one case wherein the patient was broken down with dysentery, the emetic was not salutary; ought we not then to infer that he perished, unless cured by the sovereign specific.

Dr. Klapp's reasons for trying emetics in the first place, it is feared is not correct or tenable.

> "Having many times remarked that the subjects of mania, in consequence of strong drink, are very apt to labour under a vomiting for several days before they become deranged, and that when the mental disease begins, the vomiting ceases; and having also observed, if puking spontaneously or accidentally occurs, while a person is affected with this species of insanity, a period is shortly put to the disease, &c. By these observations I was very readily led into the following reasoning If spontaneous puking will prevent for several days, and is even able to cure mania of this kind, why would not the administration of suitable emetics produce similar good effects."—*Ecl. Rep. Vol. VII. p.* 252.

Now to infer that because the disease was ushered in with a vomiting, that ceased as soon as the delirium commenced, we should therefore reproduce this vomiting, is not medical logic: as well might it be inferred, that because the cold stage of an intermittent ceases when the hot begins, we should therefore reproduce the cold to cure the hot; and in mild variola, because the fever ceases with the eruption, we ought of course to re-excite the fever to drive away its consequences on the skin.

But again—he concludes his premises with a fact which we presume is not general, and for our own part we have never observed it in a single instance—"that if puking spontaneously occur while a person is affected with this species of insanity, a period is shortly put to the disease." This spontaneous vomiting would no doubt prove effectual in mere intoxication, but so far from postponing the delirium in question, it may fairly be considered as one of its exciting causes, as every thing must be which debilitates; and so far from suspending or curing it, we have uniformly found it a troublesome and pernicious symptom. See Dr. Wright, p. 18 of Vol. VI. for the same opinion.

We may infer also that authors have not always discerned this disease correctly; because in their histories of it, their symptomatology is not always correct. "The eyes are red and furious—the patient complains of violent pains in the head."—Snowden, *Eclectic Rep. Vol. V.* and his reviewer, *Philadelphia Journ. Vol. I.* says that "the eyes are red and have a very furious expression, the face is tumid and suffused." The truth is, that the eyes are very seldom red, though the patient loses days and nights of sleep, and furious they never are; but as to pain in the head, we have never known it in a single case. All the above-mentioned symptoms pertain to real intoxication, but are never found in pure delirium tremens. Why should the eyes be furious where the patient is in the greatest fear and the most abject humility? The eyes are wild, but not furious, and as to pain in the head, why should a disease produce this when it suspends pain in every other part of the body?

And again—Dr. Barkhausen, see *N. A. Med. and Surg. Journ. Vol. VII.* "knows of no more adequate comparison of the disease, than with a fit of intoxication, both having great analogy with each other, as well in their cause as in their symptoms:" Now we cannot conceive that there is the least analogy in either the remote, predisposing, exciting, or proximate causes, and as to the symptoms, we have never seen them similar, except in the four cases above acknowledged. Intoxication is the direct consequence of stimulus, producing *indirect* debility, but delirium tremens is produced by the abstraction of stimulus, and a consequent *direct* debility, producing a morbid increase of excitability. The presence of the liquid poison in the stomach and brain, is the cause and the only cause of the first, but the absolute want of it is the solitary cause of the second. If the doctor did really mistake intoxication for delirium tremens, no wonder that he found so much advantage in nauseating medicines, and particularly in tartar emetic; and that he did make this mistake may be fairly inferred from the smallness of his doses. He found five grains of tartar emetic in twenty-four hours quite sufficient, and he even forbids more than twelve grains in that period, lest a gastritis be thereby induced. He finds also half-grain doses of opium every two hours sufficient to calm the wild brain of the deliri trementes, and soon to procure a "critical sleep." Surely if this were a fact, our common doses of opium in this disease would soon put the patient into a critical sleep to awake no more.

But the truth is, that such doses, whether of opium or of tartar emetic, would, in the real disease, prove utterly insignificant, and the patient would be lost through the want of medicine. They would prove like the old dose of three drops of wine in a fever. But after a drunken fit is partly removed by nauseating doses of tartar emetic, we can readily conceive that half-grain doses of opium every two hours would prove very effectual in preventing delirium tremens, and would soon restore the patient. Thus, from the success of the doctor's practice, it may be fairly inferred that he is not well acquainted with the disease in question. But in p. 24, of Vol. VI. of this Journal, Dr. Wright appears to slide insensibly into the same erroneous diagnosis. He says—

> "The general phenomena of poisoning by opium and some other narcotics, are often very analogous to the symptoms of per-acute delirium tremens from drink; and it has been long matter of apprehension with me, that our plan of treating high *temulence,* (drunkenness,) was liable to the serious risk of supplying the morbid actions with an impulse fitted to carry them on to direct augmentation. In one of the cases reported above, where eighteen grains of opium, two grains in the hour, had been taken, after suspension of the opiate three hours, without the least apparent controul of the symptoms, between four and five grains were given at one dose. The delirium increased, convulsions ensued, and continued until death."

Now surely it is impossible to maintain this opinion—there is no similarity between the symptoms of poisoning by opium and those of delirium tremens. Dr. WRIGHT seems to acknowledge that the patient died of opium; if it was a case of "high temulence," the opium was no doubt an improper medicine, but if it was delirium tremens, he certainly died for want of that remedy. We are not reflecting on the skill of Dr. W., his established reputation emboldens us to point out wherein, at least in our opinion, he has sometimes failed; even HOMER occasionally sleeps, *aliquando bonus dormitat Homerus.*

But again—we should infer that authors have sometimes mistaken intoxication for delirium tremens, from considering the confusion of language which they use in treating the subject. The excellent author of the paper which heads Volume VI. will pardon me if I refer some of his numerous readers to a few passages in his paper in which he does not appear to discern with his accustomed accuracy, between the language of drunken excitation on the one hand, and delirium tremens on the other. In page 19, he speaks of suddenly suspending "*temulent irritation*" by opium and camphor, and he says, "*we have tried various modes of exhibiting the opiate in temulence,*" and "*the form of opiate employed in temulence seems,*" &c. He speaks of pul. doveri answering well in "habits giving an inflammatory character to the grade of excitement associated with *tumulence.*" In treating of the efficacy of the *araneum,* he says that a man "after consuming, by his own report, three quarts of brandy in thirty-six hours, fell into a state of *temulent* excitement," &c. see p. 20. And in a case which was unquestionably delirium tremens *in the end, see p. 22, line 3,* "he became so agitated, *temulent,* that it was neces cessary," &c. In page 32 he discusses the question whether it is safe to withhold ardent spirits in *temulence.*

In all the above quotations the reader may observe that the author uses language which can be appropriated only to intoxication, and to its protracted irregular excitement, a state of the brain, perhaps sometimes approaching phrenitis, and often continuing for several days after the patient has quit his spirits. Such also is the uniform language of the whole essay. But the author's successful treatment with very small doses of opium, half a grain every half hour, gives us the most satisfactory proof that the disease was not delirium tremens, and that although he mistook the name, he made no dangerous error in the treatment. Such small doses of opium, with the abstraction of ardent spirits, would permit an intoxicated brain to subside into regular action, when by giving larger doses the abnormal excitement would be protracted, and probably end in "convulsions and death." In this way we shall venture to explain, at least for our own private instruction, the happy event of the case in page [illegible], where the author substituted the *uranium* for opium, as this we presume was a pla abstraction of all stimuli at once.

But at last the author's faith in these small doses of opium was completely shaken, for he says, "in June 1829, we had three cases of delirium tremens, in which the power of sedatives and opiates combined with our best judgment, and administered with all our skill, was unequal to cope with the disease, and we incurred defeats the more unpleasant because novel and unexpected." Now, why these defeats? Most unquestionably in the two first, through the fear of opium. This is as certain as that two patients would die of enteritis, who should lose blood only by a leech: or that wine in the old dose of three drops would not raise a patient in the typhus fever. The third case is not given in such detail as to enable us to form any opinion.

Now what we contend for is, that if we cannot cure this disease in its worst forms without giving from ten to fifteen grains of opium every two hours, till long-continued sleep be induced, if we sometimes go as high as twenty grains at a dose with complete success, surely the half-grain doses are not appropriate or sufficient; and that the disease which is so readily cured by these small doses is not the same that is cured with equal success by doses twenty times greater. Sometimes when we fancied that apparently mild cases might be cured by two-grain doses every hour, we have been disappointed at every visit to find the patient awake, and thus it has continued till we have gradually raised the dose to twenty grains.

Nor have we used these doses unassisted by other soporifics, but have tried assafœtida, camphor, infusion of hops, porter, lupuline, a tea-cupful in a night, the pediluvium long continued with the patient in a sleeping posture, but nothing appeared to assist the opium very sensibly, nothing but this divine narcotic appeared to be worth the trouble of using it in the worst cases. What the disease consists in is not known, authors may talk about the abstraction of stimuli, and the consequent morbid excitability—this may be true, or it may not, it may be the whole cause, or only a part of it, but that Providence has provided a remedy of specific power cannot be doubted. In one instance the operation of this was so salutary and striking, that we cannot refrain from relating the case, and then let it be inquired, whether it is the same disease that is cured by half-grain doses of opium.

The poor man who was the subject of our second case was treated by emetics without effect; tartar emetic, and ipecacuanha we tried in very large doses, but the stomach appeared to be wholly insensible to their operation. We then gave eighteen grains of opium at one dose, and with our own hand. Four hours afterwards we found him surrounded by his neighbours, who had collected to secure him with ropes, himself was posted in a corner of the room, with a huge billet of wood raised over his shoulder, thus prepared to strike any one that should approach him. I desired the people to come away, and I would prevail upon him to be quiet, but he forbade my going near him, and seemed resolutely bent on self defence. This was the only case of angry delirium tremens that I had ever seen, and therefore I hesitated for a few minutes to consider what was next to be done. In the mean time, however, he suddenly laid down his club, and said—"now, mother, I'll go to bed." He did so, spoke to me as rationally as he had ever done, took a bowl of soup, dropped asleep in ten minutes from the time he laid down his billet of wood, and twenty hours nearly uninterrupted sleep left him perfectly well, both in body and mind.

Who does not see in this case the decided effect of a large dose? No sooner had it time to dissolve and take effect, than it suddenly brought back the wandering intellect, calmed the fluctuating brain, restored the husband and father to his wife and children, and the affectionate son to his mother: and yet—O remedium divinum—such an instance is only one among thousands that might occur every day, through the just administration of this single medicine.

As to any other narcotic remedy, we know of nothing that is entitled to much respect. At one time we thought the hop infusion and lupuline of some advantage, but further experience has diminished our faith. We have given a tea-cupful of lupuline in twelve hours with porter, but observed no sensible effect. In fact, it is a feeble hypnotic, and generally loses its influence in common diseases after the third or fourth dose. There was a time when we thought the acetic preparations of opium particularly adapted to this excitable disease, and we mentioned this many years ago in a letter to Dr. Coates; but after further experience we are not certain that they have any decided advantages over common laudanum, only in so far as they are not so apt to produce costiveness. An acetic tincture, recommended by Dr. Joseph Hartshorne, we have used for several years more generally than common laudanum, the recipe for which may be found in the Philadelphia Journal, Vol. XIV. p. 246—Turkey opium. ℥i.; strong vinegar. ℥vi.; alcohol, ℥iv. Triturate the opium with the vinegar, add the alcohol, and digest for ten days, or longer. It must be observed, that this is about the strength of common laudanum, and therefore one may be confidently prescribed for the other. Whether this acetic preparation contains all the narcotine, is probably not yet determined.

Whatever preparation of opium is used, it ought to be in tincture or fine powder, and it will often be necessary to deceive the patient's friends as to the quantity, or they will not give the prescribed doses.

That malt liquors, wine, ardent spirits, are sometimes necessary, we are sorry that any one should deny. These, like opium, are specific in this disease independent of the permanent strength which some of them impart. In some cases, indeed, we have seen brandy prove like oil to the dying lamp, and rekindle the expiring flame of life. There are many tonics that are highly useful coadjuvants, among which ginger, quinine, capsicum, cloves, garlic, lupuline, may be considered as the best.

But however salutary and delightful the effect of opium in this disease, it must be confessed by all that this soporific practice is far from comfortable to the attending physician. It too often happens that the administration of opium in diseases called nervous is purely tentative, and the physician is too often obliged to waste his most precious hours in waiting the effects of many insignificant doses, when one of sufficient power might have saved his patient the severest tortures. True, he may be suddenly restored by very large doses, but these may approach the confines of perpetual sleep, and therefore it requires no small share of experience and mental vigour to determine what quantity of the medicine may be insufficient, and therefore deadly on the one hand, and what may be absolutely poisonous on the other. Thus it is in all the walks of life—the liveliest pleasures are beset with the most insidious dangers. A young physician once came to me in the greatest alarm lest he had destroyed his patient by my advice.

Upon arriving at the bed-side of the latter, we found him in a profound sleep, from which he could not be roused, and to add to the alarm, he had taken four ounces of good laudanum, part of it by the nurse's mistake, in about twelve hours. His pulse was good, his skin moist, his breathing not bad, his colour healthy, his features at their ease, and I ventured to assure my friend, not however without some uneasiness, that his patient was safe. He slept twenty-four hours, and awoke nearly well. But this was an extreme case, and not to be imitated, unless when the patient has been in the habitual use of the poison.

Dr. Coates says he has never heard of a case in which opium was known to do harm in this disease:* but this is no proof that patients may not hereafter be brought into danger by this perilous practice: and for our own part, we never do prescribe large doses in delirium tremens without passing the time somewhat anxiously till the cure is effected. In one case, after passing an almost sleepless night, in consequence of having prescribed larger doses than ordinary, all which I knew would be faithfully administered, I was called at the dawn of day to visit my patient; I proceeded to the house with PHYSICK'S stomach tube uppermost in mind, but to my great surprise the patient had not closed his eyes during the whole night. Timidity on the one hand, and rashness on the other, are equally to be avoided: in this case the dose was increased to twenty-four grains, and a healthy refreshing sleep was thereby attained.

In the midst then of such continual discomforts attending the opiate practice, the inquiring physician would gladly learn whether there are not some means that can be brought in aid of the grand specific, or some physiological method of changing the state of the system, and preparing it for the operation of opium, so that smaller and more comfortable doses may answer the just indication. To this it might possibly be answered, that sleep is sleep, and that since it is the only remedy, it imports not, provided it be healthy and refreshing, whether it be attained by five grains or by five times this quantity. In the treatment of the spotted fever, the eastern physicians did not consider the quantity of stimulus given, but the effect produced, and by this heroic practice they saved the lives of thousands that in timid hands would have certainly perished. In the treatment of such diseases, one drachm of laudanum, or one gill of brandy deficient, and the patient may be lost, notwithstanding the alarming doses that have already been given; here it is that the physician of heroic courage will always succeed the best, as LUCAN says of JULIUS CÆSAR—

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* Dr. C. does not, however, deny that it can never do harm.—ED.

> Nil reputans actum si quid superesset agendum.

Still we fondly hope that the present unprecedented spirit of improvement will not leave us much longer in the continual disquietudes attending the opiate practice in its fullest extent. Cold water poured on the head, cups and blisters to the head and back of the neck, have all been tried with some little show of advantage; but there are states of both body and mind, sometimes of each singly, and often of both conjoined, which must necessarily forbid these remedies, or rather coadjuvants. Moreover, they are troublesome, and but too well calculated to prevent sleep.

It has been supposed that emetics render the stomach more sensible to the operation of opium. This is no doubt true—it was a favourite position with Dr. Rush in all diseases wherein he used them, and he was accustomed to relate the case of a child that perished by a very small dose of laudanum given after the operation of a puke. He accounted for this by supposing that the excitability of the stomach was increased by the emetic, whereas Dr. Coates presumes that this organ being cleared of its various contents, the opium therefore acts more powerfully upon it. The fact has been observed to be true, let the cause be what it may, but we strongly doubt whether much is to be gained by this method of preparation in delirium tremens. That it has sometimes been useful in preparing the system for the operation of opium, and that it has even cured the disease, cannot be denied; but there are so many strong objections to its general use, so much uncertainty as to the cases to which it may perchance be adapted, so much delay occasioned thereby, so much doubt as to the strength of the patient and his ability to bear it, that we are ready to presume it can never be brought into general use.

There is moreover no just theory for the operation of emetics as yet invented. Dr. STAUGHTON, one of their principal advocates, contends that the whole disease consists in an inflammation of the stomach, and that dissection proves the fact; but gastritis was never to be cured by emetics in any system of medicine, and thus his pathology condemns his practice.

The warm bath has lately been used with surprising success as a means of calming the tumultuous brain as well as of preparing the system for the operation of opium; nor can any one read Dr. Wright's paper, which heads Vol. VI. *see p.* 25, without yielding a most willing assent to the wonderful efficacy, as well as to the mere priori plausibility of the remedy. Almost every one, whether medical or not, knows the composing influence of the pediluvium, and with this in view we have often used it in delirium tremens. Our method was to put the patient in bed in a supine position, and to place his feet in a tub of warm water, by drawing his legs to an angle with his thighs. In this position we are accustomed to bathe our patients from one hour to three or more in various diseases; but we are not certain of having ever derived much advantage from it in delirium tremens.

The general bath, however, is a far different thing, and from the mere recommendation of Dr. W. it is hoped that no man will treat a single case of the disease without giving it a fair trial. True, it is a most inconvenient remedy in private practice, but the advantage to be gained, or even the consciousness of doing our duty, will amply repay the trouble. The principal apprehension we have for the success of the remedy is that the very small doses of laudanum which Dr. Wright found sufficient after using the bath, give occasion for some sceptical fear lest errors might have attended his experiments; and yet the cases were so numerous, and were so conscientiously attended by this able practitioner, that to express any doubt requires a degree of hardihood we do not wish to impute to ourselves. Time will decide, and whoever shall have fairly tried the new remedy in a sufficient number of cases, ought forthwith to make known his success.

Dr. Wright acknowledges that his reading on the subject of delirium tremens has been but limited, and hence he is not informed whether the warm bath be a new remedy in this disease; he will therefore be glad to learn that his practice will derive no little support from the experience of Dr. Armstrong. This highly gifted physician has used affusions of warm salt water with the happy effect of rendering the system so alive to the operation of opium, that forty to fifty drops of laudanum given after the affusion, and repeated at the end of two hours, has often allayed the whole disease. Generally, however, it has proved a mere alleviation, and therefore, under his favourite notion, that calomel equalizes the circulation, and removes congestions, he gives two or three grains, with a grain and a half of opium, every six hours; even this small dose of opium is to be reduced one-half after the first day's administration, and this practice, aided by frequent affusions, has rarely been known to fail.

Having never felt the necessity of calomel in this disease, we have not even thought on the subject; and not having had any confidence in such small doses of opium, we have entirely neglected the whole of Dr. Armstrong's practice. For this we take no little blame to ourselves, for the most unreasonable opinions, when sanctioned by such a name, ought to insure the most respectful consideration. It must be acknowledged, however, that Dr. Wright's method appears more plausible in theory, since it must have a more composing effect from the long-continued and steady impression on the system; but since the two modes reciprocally recommend each other, they ought to have a comparative and impartial trial. The virtues of calomel are manifold and unexpected in many diseases, and surely any medicine is safe under the recommendation of Dr. Armstrong. But if any cases occur in which the physician is satisfied that the rapid action of the calomel is necessary, it might be proper to use the cold affusion, as afterwards practised by Dr. Armstrong on the recommendation of Dr. Ramsay, and, as it appears, with success equal to that of the warm.

We have already acknowledged our fault in not having tried this method, which has been so long before the public. True, there are many cases in which the patients are too much broken down for either the warm or the cold affusion, but in the greater number these remedies may, and ought to be tried. The time is now arrived in which the physiological physician will not consider it consistent with his lofty title and pretensions to stimulate an inflamed stomach in order to quell a disease of the brain; something must now be effected through that most important organ, the skin, and through the avenues which it affords to the brain, and that this can be done, the whole system of modern medicine affords the greatest encouragement to hope.

As to venesection, we have never seen a drop of blood spilled in this disease except in two cases; these were not our patients, nor had we any thing to do with recommending this measure. If in this world there is any certainty out of the intuitive sciences, it appears to us certain, that not one drop of blood should ever be taken from the general circulation; and we may lay it down as a maxim, that when pleuritis, enteritis, gastritis, are to be cured by brandy and opium, then will delirium tremens be cured by bleeding and an artificial cholera morbus. If there be any disease to which we would venture to compare delirium tremens, it is the typhus under certain forms, and in fact we have sometimes been extremely embarrassed in our discrimination, particularly in the typhus pneumonoides. In the last stage of this disease we have many times seen such an exact semblance of delirium tremens, that there was not one diagnostic symptom left. The patient sits up in bed in a good-humoured delirium, sees imaginary beings in every part of the room, picks at flocculi, desires to leave the house and go home, his tongue is moist and nearly natural, the figure and contour of his face but little altered, his hands tremble, his pulse sinks, his tendons jump, he sleeps none till he sleeps in death, no quantity of stimulus affects him, in his last hours he will sometimes run about the room till he falls exhausted, or even dead at your feet.

This is the termination of typhus pneumonoides as it occurs after the loss of too much blood. Whether it is that some undiscovered lesions, or some unknown entity that is common to both, can establish this community of symptoms, has not been yet ascertained. The typhus pneumonoides has not appeared in our neighbourhood for the last ten years, or we should probably ere this have tried in its delirious stage what the largest possible doses of opium would effect. Nor should we consider this an unpromising experiment, since in this stage there is no inflammation in progress, as the delirious affection will generally suspend what the lancet has left. The disease is almost certainly allied to the spotted fever of New England, in which large doses of laudanum were found of primary efficacy.

But even to the common typhus, or slow nervous fever, there is a strong alliance pointed out by the symptoms of this in its stage of delirium: and let it be observed, that this stage of delirium, in every form of typhus fever, is hurried on by bleeding too freely, precisely as the loss of blood will sometimes usher in a delirium tremens. Whatever debilitates the drunken or the typhus patient too suddenly, is certain to bring on what might fairly be called a delirium tremens in either. We are here aware of being in controversy with the higher authority of Dr. Coates, and we are not unwilling to suspect our own judgment wherever it differs from his; but his testimony is merely negative; he states what he has not seen, we believe we are stating what we have actually seen and known.* In all cases then, wherein, by necessarily bleeding, and abstracting the patient's favourite beverage, the disease is to be apprehended, more or less opium is to be given as a preventive: and that it will obviate the coming evil, and that it may be given with safety in the necessary doses, even in the inflammatory complaints of such patients, there can be no question.

But from the medical journals we learn that FRANK, SPERANZA, and others, call the disease an encephalitis, and bleed as we do in America, for a phrenitis, e. g. from external violence. This is another clear proof of our first position, that the disease is often suspected where it does not exist. Nor is this at all surprising, since even the learned Dr. GOOD, in his 2d edit., describes it under the ridiculous name of hypochondriasis autalgica, and most clearly proves that he had never seen, or correctly distinguished it from some other, we know not what, delirious affection: and Dr. GREGORY, who would fain give a summary of the present state of medicine, jumbles it even in his third edition, between phrenitis and hydrocephalus, and even supposes that it is sometimes produced by the poison of lead, and by mental emotion. Not so with Dr. ARMSTRONG, of the same city, and sphere of observation—he describes it so correctly, that his knowledge is altogether unquestionable, and notwithstanding his general delight in the shedding of blood, he is for himself surprisingly cautious in this disease. This is a stubborn fact, and shows the man of talents for correct observation, and the surmounting of theoretical prejudices.

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* Dr. Coates may have been led into this error, if in reality it be an error, by the fact, that many drunkards fall into delirium tremens with extreme difficulty. Some of these miserable wretches we have known to pass through many years of alternate drunkenness and sobriety until their constitutions were destroyed, without ever knowing this disease, whilst others were continually falling into it from the most trifling and apparently inadequate causes.

But even suppose that inflammation exist in the stomach, according to some, or in the brain according to others, or even in both, as it no doubt often does, is it not the merest madness to contend, in the present age of medicine, that the body thus diseased cannot be carried safely through without venesection? In typhus fever, and particularly in that form of it so well known in New England under the name of spotted fever, there is infinitely more inflammation than ever was discovered in delirium tremens, and yet the most urgent stimuli were the only remedy.

The pathologist must not always be governed in his practice by the frightful lesions discovered after death. This would be to imitate the ignorant, who, on watching the dissector's knife, are willingly persuaded that no human means could cure an empyema, or a sphacelated bowel. The congestion, effusion, and apparent inflammation, which too often lead the pathologist astray, are generally formed in the last hours of life, and probably in a great measure after all rational hope of a cure had been entirely abandoned.

This is one of the dangers that continually beset the inquirer into morbid anatomy. He no sooner discovers in a few cases of the same disease a similar lesion, than forthwith he supposes it to be the sole cause thereof; or rather to be the disease itself. But have we not cases innumerable of gastritis and encephalitis, which were never attended with the symptoms of delirium tremens? Have there not been cases without number, of these lesions which were not attended with remittent bilious, or with typhus fevers? *Certainly*, must be the answer. Is there not then some undiscovered entity which is the proximate cause of these diseases? *It is possible, but since we cannot find it, we are bound by the acknowledged maxim of legal evidence to presume that it does not exist.* Such must be the answer of a candid pathologist, who refers remittent bilious fever to an inflammation of the stomach, or a typhus fever to a meningitis. But here he permits himself to forget that he is not omniscient, and that many things exist which are altogether beyond his reach, and far above all mortal inquiry.

But mark how this hasty generalization leads the patient astray. In an old-fashioned enteritis, or meningitis, do we not suddenly bleed the patient almost to death, in order to rescue him from certain fate, and do we not save many lives thereby? But who does this—or any thing similar in a typhus, or even in a remittent bilious fever. We bleed in both it is true. But not with the same impetuosity as in a common local phlogosis. Here again the *juvantia et lædentia* establish the diagnosis, and direct our attention to a group of symptoms which, revealing as they do a certain state of the body and its relation to certain methods of cure, our way is plain, and our success is ensured by knowing that we tread in the footsteps of those who are more learned and wise than ourselves. Thus it was that the ontologists, to use the fashionable but unjust and ridiculous cant of the day, treated the spotted fever with the most astonishing success, and yet to all human eyes their method was in direct contradiction to their best pathological judgment.

Let it not be supposed, for one moment, that we undervalue morbid anatomy; on the contrary, we contemplate its progress with infinite pleasure, and are ready to predict for the next generation from the labours of the present, many important and truly useful discoveries; but we should wish to see it for the present a mass of facts, and not of theories, a volume of important truths equally divested of opinions and fables. In many cases it already sheds abroad an infallible light, but in others it is an *ignis fatuus* which, in the hands of a devious spirit, is but too well calculated to lead the unwary astray. In fact, it is like the pulse, a "*res fallacissima*" in many cases, and can only be true and useful when considered in correlation with a great variety of facts and reasonings, but particularly with the known effects of medicines, and with the established methods of cure.

Consider then for one moment how plainly this can be illustrated by the disease before us. Dr. Staughton thinks he proves by numerous dissections, that delirium tremens is an inflammation of the stomach, and yet he would propose to cure it by emetics—why? for no other reason surely than that he supposed emetics had been found useful by experience; but Broussais has found that remittent fever is a gastritis also, and condemns emetics—why? because experience had long determined that they were injurious in all inflammations of the stomach. Now, it appears to us that the true eclectic upon finding the stomach inflamed in delirium tremens, would have reasoned thus—

> "In the first place, this man has long been in the habits of intemperance, and this phlogosis may be chronic. Secondly, it could not have produced the symptoms of delirium tremens, or they would more generally attend gastritis, they would result from poisons, and from external violence, which is never the case. Thirdly, the method of curing gastritis is the very antipodes of the cure for delirium tremens. Fourthly, had this gastritis been the cause of those symptoms, they would always be aggravated by those stimulants that are known to cure them. Fifthly, suppose the stomach to be inflamed during chronic intemperance or a recent debauch, would not the method of preventing delirium tremens therefrom, be to abstract all spirits at *once*, reduce the patient as for a pleurisy, and give him a suitable portion of gum water."

For these and many other reasons, says the eclectic, we must look further for the *morbus ipse.*

In the next place he finds the brain, or its meninges inflamed, and a similar course of reasoning proves to him, that neither is this the proximate cause; and further, the *juvantia et lædentia* have long shown him that even this, bad as it appears, is to be prevented or driven away by stimuli, as in spotted fever, or all his patients must die.

Northumberland, Pa. June, 1830.

Art. IX. *Case of Tubero-Carunculoid Liver.* By Thomas H. Wright, M. D. Physician to the Baltimore Alms-house Infirmary.

In a report in the number of this Journal for November last, detailing certain forms of hepatic pathology, there is a case described as an instance of carunculation, or "fleshy vegetation" of the liver. The following appears to belong to the same class, but representing the tuberoid character, in a different aspect. The rarity of those forms may render this case also worthy of notice, and I therefore give a sketch of it now; that it may stand as nearly as possible in connexion with the former.

A man of large person, middle age, and vigorous constitution, was admitted into the Baltimore Alms-house in the second week of November, 1830. Disease, acute pneumonitis of twelve days course, without treatment. Diagnosis, by the signs after admission, suppuration in inferior lobe of right lung, probably participated by the liver.[*] The patient prostrated slowly, and died thirteenth day in hospital.

Dissection.—Thorax. Left lung sound throughout. Right lung totally extinct. In place of lung texture, the right pulmo-pleural sac was completely filled with a light-coloured, cream-like, inodorous pus; no vestige of parenchyma. The cyst, (pleura?) of this great abscess was entire every where, and its substance very much thickened.

The liver proved to be entirely free of concern in the decay of the lung. It was enlarged one-third more than the usual bulk of that organ, but not sensibly morbid. There was something in the surface character of this liver, of which I have seen no former example. The total superficies of the viscus exhibited a groupe of eminences or mamillary risings, about the size of garden peas, individually distinct, yet every where proximate, each one touching the base of others, and thus studding the surface of the liver in its whole extent. Those risings were equally and regularly disposed over the whole exterior of the organ, fringing even the crescent margin all round, with a regular series of mamillary or pisiform prominences. On the concave surface of the liver, the risings were more closely placed and evidently larger in size than any where else: the regularity of form was remarkable in them every where. The appearance of the total crop of those elevations on the liver, was strongly representative of the close, but discrete small pox, in the first period of pustular maturation. The size and form were the same, with one distinction only—the absence of the umbilicated apex of the variolous pustule. The eminences on the liver were regularly rounded, obtuse, conoid.

There was nothing palpably morbid in the constitution of those risings on the liver, no conversion or apparent tendency to change in any of them. By section, they appeared to consist of the common pulp or parenchyma of the organ, and were all covered by the delicate, peritoneal tunic of the liver, in a healthy state. Colour of the eminences and whole viscus, natural complexion, pale chocolate hue.

Baltimore, Dec. 1830.

Art. X. *On the Operation of Physical Causes upon the Constitution, the Health, and Diseases of Man.* By Edward Florens Rivinus, M. D.

In contemplating the changes and vicissitudes of nature in the widest sense of the word, a careful observer can scarcely fail to perceive the order in which they occur, and succeed one another. They are not ushered in as the offspring of incoherent chance, but, on the contrary, appear to be the result of a systematical arrangement, pervading the universe, and subject only to certain and distinctly marked local modifications. While each submits to the well-defined authority of the other, they influence in combined force, and act upon the principle of vitality of every organized being. To the mere lover of science, not less than to the philosopher ex professo, this doubtless exhibits a most interesting subject for examination and reflection: yet, of infinitely higher importance to the whole human family, is their closest and most accurate observation, when considered in a medical point of view.

Under the title of *physical causes*, the chemistry of nature enters extensively into the calculation of every practical physician, at least so far as the district of his practice is concerned. The practitioner of more enlarged views, however, would fain limit himself to the observation of the phenomena of nature, as they successively occur within the narrow boundaries of individual activity. He will travel farther in pursuit of knowledge and truth; he will compare the changes and events of nature in other regions, the observations and experience of his medical brethren in distant countries with those of his own, and in this manner he will gradually arrive at certain conclusions, highly advantageous, when guided by sound judgment, to the fellow beings under his care, and doubly so, when published, to mankind at large. But, in order to be of any practical service, the mere accumulation of facts of this kind will not be sufficient to show the ramifications and the widely-established influence of physical causes upon both the healthy and the diseased condition of man, unless, indeed, they be judiciously arranged under certain heads or classes. To a limited extent this has been done in numerous instances, as will appear by referring to the medico-topographical descriptions of individual cities and districts, with which the medical literature of almost every country abounds. And valuable as these sometimes may prove for the discovery of the sources of certain diseases, yet how confined is their tendency after all? and what better are they than scattered notes without any connecting link?

Besides these publications, there is an abundance of kindred material, furnished by the present improved state of natural sciences, which well deserves to be redeemed from its chaotic, and, of course, neglected condition. If collected, and, as far as practicable, *geographically* arranged, a desideratum would be obtained, which seems to have been felt by the father of physic himself, and which was but partially accomplished in his treatise on "Air, Water, and Situation."

Under the title of "*A Medical Geography,*" many an interesting phenomenon of nature, and many a curious fact, which hitherto has defied every attempt at explanation, might be more satisfactorily examined, when compared with each other, than ever could have been done before. The doctrine of external influences, so powerful, yet so mysterious, so frequently misinterpreted, because so little understood, would doubtless be much advanced by some sort of classification of their known or probable causes, and thus, at least, one fertile source of the opprobria medicorum would be gradually removed.

Having premised so much on the subject of physical influences, and on the utility and necessity of generalizing them, so as to enable us more fully to ascertain and understand their nature, it will now be requisite to demonstrate more in detail how a systematic arrangement might be accomplished, without, in the least, impairing or confounding, by an excessive fondness for theory, the more forcible arguments of nature. It has been intimated, as they admit of being classed according to certain geographical limits and boundaries, that a geographical description would afford the most correct and satisfactory arrangement. Pursuing this idea a little further, *a system of medical geography might be defined as that science which treats of, and describes, all those objects which have a marked influence upon the health, bodily constitution, mental faculties, and diseases of man.*

Divided into nations, tribes, and families, the human species is dispersed all over the globe, more so, indeed, than any other organized being, belonging to either the animal or the vegetable kingdom. Man is seen living and thriving under circumstances and relations the most heterogeneous when compared with each other. Thus, we find him under the sun-burnt regions of the equator, as well as on the icy fields of Greenland—in countries contiguous to the north and to the south pole; again we find him spinning out his existence in some remote and sequestered valley, undisturbed, during his journey from the cradle to the grave, by the commotions which agitate the majority of mankind; we meet him toiling for a livelihood on the highest mountains, as well as in the bowels of the earth; we see him enjoying his existence in the vicinity of pestilential swamps and morasses, along the sea-shore, and on the ocean itself, whose unsealed deep is too often, alas! destined to become the final roadsted of the weary mariner and his associates.

From these premises, it will appear that the various external relations and circumstances under which he lives, and which act as moderators, as it were, of the privileges of life and action, must exercise a paramount influence upon his whole existence. For there is not the being who can so far soar above his earthly sphere, that any of the surrounding objects should be to him a matter of absolute indifference. Experience, on the contrary, shows that the most important gradations of the animal and intellectual man, seem to depend upon his external situation. Witness, for example, and compare the energetic, passionate, and fiery son of the Arabian desert, with the indifferent, squalid, and half-starved inhabitant of the polar region—the spirited and irritable Italian, with the calm and circumspect Dutchman, &c. Now, these are features and distinctions as remarkable as they are peculiar to entire nations; and in order to account for them, we are obliged to trace the laws of the economy of nature.

Yet, if the physical character of man in his healthy condition is already so varying, how much more so must this be the case in a state of disease and bodily suffering! Some diseases originate only in certain districts, where they remain stationary, or from whence they spread abroad, especially by means of contagion. Examples of the former kind are the plica polonica of Russian Poland, the pelagra of the northern provinces of Italy, and the elephantiasis of the East and West Indies: instances of the latter description are the small-pox, measles, lues venerea, &c. which most probably have had an origin quite local, at periods, however, so remote and uncertain, that the most enlightened of the medical profession, even at the present day, know but little as to the nature and circumstances under which they made their first appearance; but, after having seized once upon mankind, they have transferred the curse of their existence from generation down to generation.

The external circumstances alluded to above, must, therefore, exercise a considerable influence upon the character and course of the more common, especially the febrile diseases, from whence it may be further inferred that there exist, in different countries, although with the same diseases, a very marked difference of susceptibility for the impression of medical remedies. And this circumstance once admitted, we shall be no longer at a loss for some of the reasons why the practice of medicine varies so sensibly in different countries, or why before praise or censure be bestowed, we should first examine the external causes, under the auspices of which, certain medical principles, established in theory, are sometimes abandoned in practice, or qualified, according to the genius loci. If, for example, this course of reasoning had been adopted always by the European theorists, particularly by some of the modern French schools, greater justice would doubtless have been done to the American practice of physic, and we should have heard less of the many foul aspersions, by which, at different periods, our more energetic mode of treatment has been branded.

Having dwelled upon the above remarks both as incidental and preparatory to the discussion of the object of inquiry, it may be proper now to point out, as far as limited abilities will go, the principal causes of the changes and vicissitudes of nature, which, as has been stated before, are to be looked upon as the nursery of those powerful physical influences upon the health and the diseases of man, and which, for the present purpose, must be considered as constituting the basis of a system of medical geography. In this point of view, *three* objects present themselves for consideration, which, being alike interesting and important, may be esteemed as the principal causes of the various changes daily witnessed in the economy of nature.

I. *The relation of our Planet to the Sun and the Moon.*

In order to define more clearly the precise nature and extent of this position, it will be of service to adopt the axiom of the natural philosophers—that in the same ratio, in which our earth submits to the influence of the heavenly bodies, man himself, with all the animals and vegetables, which live parasitically, as it were, upon its surface, of course, must be subject to it likewise. Therefore, as the sun is the sole cause of the natural division of time into night and day, we find the life of man divided into corresponding periods; which division has struck some philosophers with so much force, that they have even attempted to distinguish between a diurnal and a nocturnal life, the former of which was supposed to obey the solar—the latter the terrestrial principle. The regularly alternating function of watching and sleep; the regularity in the evacuations, as well as in the taking of food; the almost methodical return of certain periods in some diseases, as the paroxysms of tertian fevers, the exacerbations of others at the close of day, &c. all these events might be accounted for in this way.

The influence of the moon upon the career of some diseases is most sensibly felt in the regions of the equator: but, also elsewhere there is ample testimony borne to its action.* The crises which, with so much regularity, take place on the seventh, fourteenth, and twenty-first days; the catamenia of females, (as is still believed by many;) the periodical bleeding by the piles, occasionally to be met with in some men; the increased vehemence with which some diseases are apt to renew their attacks in some of the moon's phases, as epilepsy; the nervous excitement of sleep walkers, &c. are a series of facts which strongly urge the belief of their being obedient to lunar influence.

Dr. F. Balfour in his "Treatise on the Action of Sol-lunar Influence," p. 62, says, "that there is reason to believe that the celebrated vis medicatrix naturæ, the producer of paroxysms, the giver of remissions, the deity of some physicians, the devil of others, is nothing more than the sol-lunar influence, exerting itself upon the condition of the constrictive power of the vascular system, in disease and in health, according to laws that are uniform and universal." And elsewhere† the same author remarks: "from the observations I have made in India, not only upon men, but upon dogs and horses, I am much inclined to believe that in all animals, even when in health, there prevails in the bowels, during the lunar periods, a stronger tendency to contract, and to retain their fæces, than during the inter-lunar intervals."

II. *The oblique position of the Axis of the Earth to the Solar circle.*

This is the cause of the periodical return of heat and cold, as well as of the alternate length and shortness of days and nights, or in other words, of the change of seasons. The wonderful influence of solar heat and light upon all organized beings is universally felt, and therefore admitted They are, if considered in a practical point of view, the vivifying principles of creation; while cold and darkness induce sleep and inactivity, numbness, torpor, and death.

The distribution of heat over the globe is intimately connected with the local differences of the productions of nature, with the agriculture and the commercial intercourse of nations, and even, in several respects, with their moral and political situation. It is ascertained, that the remarkable differences of climate which we perceive in large tracts of country, under the same latitude, and on the same level above the surface of the sea, do not arise from the trifling influence of individual localities, but that they are subject to general laws, determined by the form of the continents in general, by their outlines, by the state of their surface, but particularly by their respective positions, and the proportion of their size to the neighbouring seas. The relative position of the transparent or opaque, of the fluid or solid parts of the earth, modifies the absorption of the solar rays falling under the same angles, and at the same time the production of heat. These circumstances, the winter cover of ice and snow, which is peculiar to the continents, and to a very small part only of the seas; the slowness with which large masses of water are heated and cooled; the radiation from smooth or rough surfaces towards a cloudless sky; the regular currents of the ocean, and of the atmosphere, by which water and air from different latitudes and different depths and heights are mixed—all concur to produce the peculiarities of climate. It may, therefore, be said, that every place has a double climate, one depending on general and remote causes, on the general position and shape of the continents, and another determined by the peculiar relations of its locality.*

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* Vide Balfour on Sol-lunar Influence, p. 5.

† A Treatise on Putrid Intestinal Remitting Fevers, p. 21.

The distribution of heat in the different seasons is strikingly different, although the mean annual temperature be one and the same—a circumstance which has a very great influence on the growth of plants, and on the health of man. "In comparing the mean annual temperatures with one another," says Humboldt, "I find that in the western part of the old continent, the temperatures diminish from the south towards the north in the following proportion:—

"From 20° to 30° N. Lat.	3.2°	Reaumur.
30 to 40	3.6	do.
40 to 50	5.7	do.
50 to 60	4.4	do.

"In the eastern parts of the new continent the diminution of the mean temperature are as follows:—

"From 20° to 30° N. Lat.	5°	Reaumur.
30 to 40	5.7	do.
40 to 50	7.2	do.
50 to 60	5.8	do.

"In the climate of palms, a feeble easterly wind always brings strata of air along with it, having generally the same temperature. Earthquakes, tempests, and thunder-storms do not disturb the small but periodical tides of the atmosphere. But the changed delineation of the sun, together with the upper currents of the air, from the equator towards the pole, modified by this delineation, determine the beginning of the rainy season, and the electric explosions, which both begin at regular periods."*

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* A. Von Humboldt's lecture on the principal causes of the difference of temperature on the globe.

To the seasons correspond the zones of the earth, to each of which, by virtue of the same law of nature, its peculiar climate is allotted. The hot zone, where perpetual summer is modified only by periodical rains, generates bilious, nervous, and putrid disorders; proofs of which are the cholera morbus of south-western Asia, and the yellow fever of the West Indies, and the Spanish Main. In consequence of the prevailing heat, a more active determination to the skin is induced in the living system, and the fluids are carried in greater abundance to the extreme vessels on the surface of the body. These facts authorize the watchful practitioner to look upon hot climates as the cradle, as it were, of the majority of all contagious, as well as of the most dreadful cutaneous diseases; hence lepra, elephantiasis, &c. are natives of tropical countries.

The cold zone, where an almost perpetual winter produces a poor, dwarfish, and weakly construction of parts, invites the pathologist to look for diseases of a more lymphatic and cachectic type, such as dropsies, marasmus, atrophy, &c. It is only in the more moderate regions that man attains the highest degree of perfection, both as to his physical construction and intellectual powers. And here the climate of the hot and the cold zone being blended, the diseases peculiar to both seem to take leave of each other, and changing with the seasons, the changes themselves give rise to many other maladies of an intermediate character, such as catarrhal, rheumatic, and inflammatory affections.

In the preceding observations have been shortly noticed those facts and laws of nature which exert a general influence on the condition of mankind, and in their mixed shades and forms, according to geographical demarcations, give a peculiar tone and character to all the animal functions. They cannot be too minutely examined, or too highly appreciated in a work on medical geography. But the subject, although far from being exhausted, has received that consideration which the object of this essay seemed to require; and in surrendering it into abler hands, it now will be proper to direct the attention to those objects amidst which man is born, and by which he is more immediately surrounded during life. In this point of view we shall have to consider—

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* Vide Humboldt, l. c.

III. *The character of the Globe, as affording to Man a great variety of Habitations, graduated by local circumstances.*

The nature of the soil upon which man lives, the proximity of the ocean, and the mountains which divide the globe into several large and separate portions, occasion, even under the same latitude and climate, an immense variety of habitations, the peculiarity of which most extensively affect his customs and habits, his mode of life, and consequently his general health. Moreover, the temperature of the atmosphere, its meteorological changes, and the condition of water depend upon the same circumstances, and frequently give to some diseases a decidedly distinct type, or still more frequently occasion others of a more endemic character.

The state of the atmosphere, whether cold or warm, dry or moist, its changes and electric susceptibilities, constitute an aggregate of circumstances, with an unbounded variety of modifications, which as agents in the formation, prevention, or cure of diseases, are deserving of the nicest consideration and discrimination of every medical man. The air we breathe may be pure and healthy, or it may be impregnated with various exhalations, according to the circumstances of time and place. The vicissitudes of temperature increase or diminish the amount of perspiration, and render the blood more or less rarefied: how can such circumstances fail very perceptibly to influence, nay, even to change the constitution of the body? Their action is satisfactorily illustrated by the existence of that singular disease, called cretinism, so peculiar to the vallies of Switzerland and Savoy; by the spare form and bilious temperament of the inhabitants of the Arabian and African deserts; by the nature of every hardy and active mountaineer, in contradistinction to the indolent, lymphatic, and plethoric Mussulman on the swampy banks of the Nile.

Besides these, other circumstances command our attention. The winds, the vicinity to, or distance from the ocean, and the volcanic origin and condition of the soil of some countries, all exercise a very great influence upon the human frame in health and in disease. There are countries where, as in Italy and Sicily, a sultry southerly wind prevails for the greater part of the year, which greatly debilitates and prostrates the powers of life; there are others, where north-westerly winds perpetually cleanse the atmosphere, increase the circulation, and invigorate the system at large. Owing to the sea-breeze, islands and countries which are washed by the ocean, have a damp and changeable climate, where neither heat or cold reach the same degree of intensity and duration, as in countries of a corresponding latitude in the interior.

Volcanic countries, generally speaking, are extremely fertile, and abound in mineral springs, which continually give out sulphurous vapours, and hydrogen. But these apparently blessed regions do not by any means exist, without being doomed to experience from time to time the most fearful reactions. Frequent earthquakes disturb, there, the peace of man, and in addition to the other atmospheric changes, the sudden fright into which they are apt to throw whole communities, not unfrequently give rise to many diseases.

The knowledge of these circumstances, with a proper and judicious estimation, will greatly augment the resources of the individual practitioner. Climate, air, and water will become more distinguished as articles of the materia medica, than they have been heretofore. In like manner would the study of pathology derive signal advantages from a thorough acquaintance with medical geography. For the pathology of many endemial disorders is believed to be still highly susceptible of improvement.

Endemial disorders may attack the inhabitants of a city, district, or country, at any time of the year, and arise from the geographical situation or physical condition of such place or district, or from the peculiar construction of houses, or from the occupation, the customs or mode of living. Thus cutaneous diseases of a certain description are more particularly bred under the tropics, yet eruptions of a different character are frequently met with in northerly countries. Peculiar to the polar regions, but especially to Norway, is a species of lepra, or radesyge, as it is commonly denominated by the inhabitants of that country, which is said to be occasioned by the prevailing cold and dampness, which predisposes the skin to certain morbid impressions. Malignant, typhus, and putrid fevers have already been noticed as the products of hot and moist countries. Countries of higher latitudes favour the prevalence of inflammatory disorders; and if exposed to a powerful current of air, which is more frequently the case in mountainous districts, rheumatic affections, catarrhs, and the whole train of distempers, which arise from a suddenly-checked perspiration, are events of the most frequent occurrence. Thus struma is endemial to the population of Derbyshire in England, and to the Alps of Switzerland. In low situations, along river-courses, lakes, and stagnant waters, we will always find intermittents prevailing. In cold countries, such as England, Holland, and Sweden, the croup has been more frequently observed. In large and populous cities, we are struck with the frequency of pulmonary complaints, so much exceeding their proportion in country districts and villages.

Certain diseases peculiar to some districts, may occur also in others, either as individual and straggling cases, or as epidemics, provided that the weather and the atmosphere approximate that condition which is supposed to be the cause of their endemial character in the former, or in other words, as soon as the climate which favours their existence, is for a time transferred, as it were, to another district; which will account for the periodical return of intermittent fevers, after an absence of many years, and for the occasional occurrence of typhus and malignant bilious fevers, in countries, the situation of which would seem to entitle them to be exempt from their visits.

Under certain favourable circumstances, endemial diseases may generate also a contagious virus, by means of which they are apt to be carried to other countries, which may be predisposed for their reception by position and other circumstances. Of this the gloomy experience of the migrations of diseases afford ample evidence; there is, for example, the spreading of the plague and lepra from the east to Europe; the appearance of the yellow fever on the shores of the Mediterranean, brought there by vessels from the West Indies, where, according to Dr. CHISHOLM,* it had been introduced from the coast of Guinea; the ravages of the small-pox, &c.

It may, therefore, prove extremely serviceable to inquire into the endemial condition of individual countries, districts, and cities, by the knowledge of which measures can be taken to prevent the appearance of a certain disease altogether, or to improve the physical condition of a place. Thus, it is related that when LANCISI, principal physician to Pope Clement XI. caused the marshes of Pesaro to be drained, the diseases arising from their miasmata were observed to cease almost immediately. The same experience is daily made in the steady improvement of our American cities and settlements. Again, the cure of many obstinate complaints will very frequently be assisted by a change of place and climate for another of an entirely opposite character. In this way the English visit the south of France, and bask in the bland and luxuriant climate of Nice, in order to rid themselves of their pulmonary disorders, of hypochondria, &c. In like manner will a change of the air of the city, unhealthy and impregnated as it is with dust and other stimulating agents, for that of the country, frequently prove highly beneficial to the consumptive patient. A change of climate in hepatic diseases is looked upon, by the European residents in India, as an infallible panacea. Mr. Annesley, in his splendid work on the Diseases of India, observes, on this subject,[*] that "this is doubtless correct in very many instances; but it is by no means so in all. Frequently the influence of a colder atmosphere is materially prejudicial, particularly in constricting the vessels on the internal surface, in determining an increased flow of blood to the large internal viscera, and promoting congestion and obstruction of those organs, which have been weakened by previous disease or the influence of climate. Hence it is that a plethoric state of the vascular system speedily supervenes in many cases, and that attacks of hepatitis or of dysentery so frequently supervene upon sudden changes from a high to a low temperature."

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* Vide an Essay on the Malignant Pestilential Fever introduced into the West India Islands, from Boullam on the Coast of Guinea.

A forcible illustration of the remarks of this distinguished writer occurred under my own eyes, some years ago, whilst travelling in the state of New York. A gentleman from Norfolk, in Virginia, labouring under a pulmonary affection for some time, had persuaded himself that a change of place and climate would be of service to him. In a state of great debility he arrived at New York, from whence he proceeded up the North River, and believing that the mountain air would have a tendency to invigorate his failing powers of life, he caused himself to be transported to Pine Orchard, on the Catskill Mountains, where, however, very soon after his arrival, and during my casual sojourn there, a violent attack of dysentery supervened, which terminated his existence.

This, and many similar cases, therefore, will suggest the propriety of not resorting to a change of climate, without the utmost precaution and discernment. Many places and districts enjoy a great reputation for salubrity of climate, whose claims to it will appear exceedingly questionable upon a closer examination. At the head of these countries there is Italy, whose "blue sky and heavenly climate" has so long been the threadbare topic of admiration, in prose and in song. But let us hear what a recent writer[†] remarks on the healthiness of these classic regions.

> "The whole plain between Pisa and Leghorn, as far at least as it approaches the sea, is highly pernicious, on the testimony of Italian authors, though it is the region watered by the almost classical Arno: and if Florence does escape that plague to a great degree, it is, on the same evidence, far from being the very healthy neighbourhood which it is commonly represented. Inland, the extent of this region is also considerable; since at Sienne itself, the annual mortality is one in ten, and even without epidemic fevers, or exclusive of them.—

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[*] Vol. I. Ed. Lond. 1828, p. 684.

[†] J. Macculloch on Malaria. Philadelphia ed. 1829. p. 171, &c.

Of Rome itself I need not again speak: and if the town of Naples escapes this scourge, it is not so with regard to the sea-shore, even from Gaeta, since many parts are utterly uninhabitable in the summer. Nor is much of the surrounding interior country exempt, in spite of its attractive name Felice."

Yet how large is the number of invalids who visit Italy for the benefit of their health! The celebrated John Bell, of Edinburgh, himself, was amongst that number, and paid the forfeit with his life upon the spot. It is here then that medical geography will render the most valuable practical aid to both the patient and his physician, by enabling them to distinguish betwixt the really and the apparently good. Scarcely less benefited would be the traveller, the foreign resident in unhealthy countries, the sea-faring man, and the soldier, by a knowledge of these facts, and by the subsequent adoption of such measures as are calculated to disarm them of their pernicious tendency, or at least to mitigate morbid impressions already made. Therefore medical geography, general and topographical, should be ordained in such a way as would make it a science of easy reference. Valuable and numerous are the materials for its organization. Cleghorn,[*] Chisholm,[†] Annesley,[‡] Macculloch,[§] are only a few of the more leading names in modern medicine, who have preceded their valuable treatises by compilations of their experience and observations on the local features of certain countries, the diseases of which, and their remote causes, they have successfully attempted to describe and to analyze. Innumerable are the medical topographies of the larger towns and cities of almost every country of the civilized portion of the globe. A few years ago, there was published in this Journal, a very accurate essay on the Medical Statistics of Philadelphia, being a Series of Tables, showing the Mortality and its Causes, by Dr. G. Emerson.[‖]

The above named writers, in noticing the countries, the diseases of which they describe, have pursued certain rules which, with equal advantage, might be adopted for a more particular description of larger portions of the globe. Thus, after having determined the geographical position and latitude of a certain place, district, or country, it will be necessary to look for those features which characterize it more particularly. If there are mountains, their situation, height, and peculiarities must be examined, and the nature of the vallies, formed by them, inquired into, with particular regard always to the direction in which they run. The woods and forests are to be considered next. Their vicinity or distance, their extent or density, and the principal genera of the trees of which they are composed, are objects alike important, pointing out the direction and character of the prevailing winds, so highly influential in the generation of many diseases. The average state of the atmosphere and weather; the winds which controul both: the quantity and quality of water as adapted to domestic purposes; the nature of the streams, and larger bodies of water, as suited to the purposes of commerce or the arts, deserve to be considered also with careful attention. Not less important is an inquiry into the nature of the soil and its different strata: the average fall of rain, and the average state of cold and heat, to be ascertained only from accurate observations made during a series of years. Finally, there are a number of details requiring a summary notice at least, because all, or each of them, exercise a joint or separate influence upon the health and the diseases of man. The construction of houses, the direction and arrangement of streets in large cities, and lastly, the customs, manners, habits, occupations, and propensities of the inhabitants, are objects deserving a proportionate share of attention.

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[*] On the Diseases of Minorca.

[†] On the Fevers of the West India Islands.

[‡] On the Diseases of India.

[§] On Malaria.

[‖] See American Journal of the Medical Sciences, for November, 1827.

Thus, after making due allowances for the inroads of a treacherous climate upon the human constitution, might not the excess of pulmonary complaints, in the northern sea-ports of the United States, be considered as the consequence of an absurd and almost culpable carelessness in dress of the female portion of the population, totally disproportionate in some seasons to the exigencies of climate? Again, the effects of tight-lacing are not less perceptible in the aggravated diseases of women, wherever this mania prevails.

Numerous diseases depend upon particular occupations. Scurvy, for example, is most frequently met with amongst sailors: and the colica pictonum is peculiarly the inheritance of painters, glaziers, manufacturers of white lead, &c.; psoriasis diffusa occurs in different shapes, most frequently in bakers, grocers, and washerwomen; shoemakers have the psoriasis pal[illegible] locally, from the irritation of the wax they so constantly employ. In braziers, tinmen, silversmiths, &c. it seems to be produced by handling cold metals: whilst flax-dressers, according to Morgagni, and manufacturers of muriatic acid, are said to be particularly subject to phthisis pulmonalis.

A singularly striking proof of the influence of national customs and habits in the generation and propagation of disease, is afforded in the practices and the almost lethargic indifference of the Turks, with respect to that scourge of their Eastern paradise, the plague. In vain did the law of Mahomet enjoin upon his followers those daily ablutions, which he, with a truly prophetic eye, seems to have viewed as the best and the most accessible of all prophylactic measures, calculated to guard the flock of the faithful from the dangers of hot climates. For there are two circumstances amongst others, observes a modern French writer,* which essentially contribute to the propagation or continuation of the plague at Constantinople. The one is the sale of the effects of individuals who have died of the disease, and for which, on account of their cheapness, there is always a brisk demand: the other is the belief that after the expiration of forty days, there is not the least danger in re-entering an infected room or apartment, which has been shut all this time, without ever taking the slightest pains previously to cleanse it. Now, it has been alleged that the plague is an unmanageable disease: yet, such it can hardly be called, so long as national customs have a tendency to perpetuate its virus, and thus, to render it endemial to the people. With the knowledge recently obtained by the investigations of the French and English army surgeons in the Levant, concerning the plague, it requires no great foresight to predict, what under an entirely Christian management, aided by a judicious police, might be effected to compel this distemper to part with a large portion of the malignancy of its type.

The experiments made in the camp before St. Jean d'Acre, by the celebrated DESGENETTES, Surgeon General to the French army in Egypt, seemed to prove that the matter contained in the pustules was not infectious, and that, by promoting the sloughing process, the patient might be saved. Experience, to be sure, has demonstrated both at Constantinople, and in Egypt, that, upon the disappearance of the pustule, which previously existed under the arm, in the groin, or on the thigh, the fate of the patient was inevitably sealed. The same result used to take place, after the patient has become delirious, in which case no medicine was of any further avail. M. ANDREOSSY, however, who is one of the highest recent authorities in all matters relating to the East, gives an account of an Armenian priest, who, being impressed with a religious belief that he could not take the disease, exposed himself every where, and, in 1812, not only superintended the Fever Hospital at Pera, but attended the infected himself. His only precaution, if such it can be called, was a small bag of saffron, which he continually wore in the region of the scrobiculus cordis, and two *issues*, one upon each [illegible], constantly kept open. Now, if this account can be relied on, it would warrant the inference to be drawn from it, that the issues in this case served a purpose analogous to the practice of the French surgeons, of promoting the sloughing process of the pustules, incidental to an actual attack of the plague.

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* See Constantinople, et le Bosphore de Thrace pendant les années, 1812-13-14, and pendant l'année, 1826. Par M. Le Comte Andréossy, Chap. XIII.

The Turks, whilst displaying an unaccountable apathy in some points, are, however, not such thorough-going fatalists as to neglect every means of precaution. They are well aware of the facts, that meat, animal substances in general, fresh bread, silk, cotton, cat's hair, &c. are very apt conductors of the plague, while wood, water, and oil resist the infection. Oil is considered an antidote; and it has been observed, that the carriers and venders of oil are rarely, if ever, attacked. Nobody touches with impunity any coin which has been in circulation for a long time. Therefore, the waiters and attendants in coffee-houses and shops never take the money immediately out of the hands of their customers, but receive it first on a wooden plate, after which they put it into a vessel filled with water, from whence they pick it up without any further danger. In like manner is meat always immersed into water, before the inhabitants receive it inside of their houses. Silks and woollen commodities, such as shawls, which cannot be immersed, are always more or less exposed to the action of the air, especially the night air, in open sheds, erected on the tops of their dwellings.[*]

Another most powerful agent is the mode of life, which so frequently lays the foundation for the most obstinate chronic disorders. Hence, we find that in any given country, the deaths of [illegible] city are more numerous than those of the rural districts, where frugality and bodily activity protect the inhabitants from those engorgements of important viscera, and subsequent derangement of structure, so frequently met with amongst citizens. This difference is principally felt in the first five years of life, when many more die in London than in the country. From five years of age to twenty, the deaths in London are fewer. Between twenty and fifty many more die in that city, on account of the large annual influx from the country. In all cities, a large portion of disease and death is to be assigned to the constant importation from the country, of individuals who have attained to maturity—but, having been previously habituated to frequent exercise in a pure atmosphere, and to a simple, regular diet, are gradually sacrificed to confined air, sedentary habits, or a capricious and over-stimulating food. This has been satisfactorily proved by the very curious experiments, made by Dr. Germer, and very recently by Dr. Baron, on animals, which indicate that a loss of their open range and natural nourishment has with them, also, a tendency to disorganize and to destroy.[*]

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[*] See Medico-Chirurgical Review, for October, 1829.

And here the fact should not be overlooked, that the geographical division of the animal and vegetable kingdom, dispersed in tribes and families over the surface of the globe, and their instinctive predilection, as it were, for certain districts, is daily exerting its influence upon man and his habits. The influence of certain productions upon the inhabitants of such countries, where they are found indigenous, and in great abundance, must be evident. There are the spices of India: there the different kinds of wine, being the produce of Spain, Portugal, France, Italy, Greece, Hungary, and Germany: there the numberless productions of the grain-growing states of Europe, Asia, and America, the inhabitants of which countries use these articles daily, and in large quantities, from whence it would appear reasonable to infer their gradual and steady action upon the human frame.

Out of these circumstances, it will be evident, grow national tastes and peculiarities, in contradistinction to individual propensities, sufficiently numerous and influential to become an object of medical inquiry. Hence the Frenchman's fondness for poultry; the Greenlander's preference of his greasy food to every other luxury: and the Turk's indomitable passion for his favourite opium. Indeed, similar predilections are not wanting in our own country, which form as strongly marked lines of demarcation betwixt the people of the north and the south, as the Mississippi presents a natural barrier between the states of the east and the west.

Even the form of government, and the degree of civilization and prosperity, to a certain extent, depend upon the physical condition of a country. Mountainous districts which barely support a thin population, check the progress of civilization, and the supremacy of the law. Their bold and vigorous inhabitants give the preference to the chase, and to warlike pursuits, with murder and rapine in their train, while their enthusiastic love of liberty not unfrequently reduces them to a state of anarchy. Yet are they compelled to live temperately, for hunting and pasture afford them the only means of subsistence. The sea-coast, and the banks of large rivers, are more congenial to the occupations of commerce and of fishing; hence, from the earliest records of history, these have been the cradle of republicanism. For commerce, although it does require the protection of the law, scorns to be governed by any other rule than that of equality: the shackles of monarchy, nobility, monopolies, and all its kindred institutions, are death to it; freedom of action and equality before the laws of the country are its only legitimate elements. However, extensive and fertile plains favour the principles of monarchy and agriculture, which, by indissoluble ties, links the tiller to the soil. Here the mechanical trades, arts, and letters are encouraged and rewarded. Yet a monarchy degenerates to despotism, as soon as the people begin to indulge in habits of idleness, dissipation, and indifference.

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[*] Medico-Chir. Rev. l. c.

From statistical inquiries and comparisons, it would seem that the share of prosperity which a nation, or a part of it, enjoys, must have its due weight in the allotment of disease and death. The mortality in France increases among the poor, and diminishes among the affluent. In the wealthy departments of that kingdom, life is protracted twelve years beyond its course in those that are poor. Thus, in the departments of Calvados, of l'Orne, and La Sarthe, one individual dies annually in fifty; while in the twelfth arrondissement of Paris, the annual deaths are one in twenty-four. The population of the city of Amsterdam has decreased, in consequence of declining commerce and political changes. In 1777, the ratio of mortality was one in twenty-seven—a period when Amsterdam was one of the healthiest, as well as one of the most flourishing cities of Europe. The deaths have now increased to one in twenty-four; and Amsterdam is one of the least healthy, as well as least prosperous sea-ports of Europe. The average annual mortality of Leghorn, [illegible] one in thirty-five; among the protestants and Jews of that city, it is only one in forty-eight, which is attributed to their greater affluence.[*]

Now, it will appear from these observations that not only the mode of life and the occupations, which, under such different circumstances, are carried on, but also the form and the administration of government itself, must sensibly operate upon the customs and usages, the constitution, and the diseases of men. Nay, even political revolutions in individual countries are asserted frequently to have changed the physical condition of man, and the nature of his diseases. Reviewing, on one side, the great political, moral, and physical events which have occurred at Paris during a succession of years, and, on the other, the progress of its population, Villerme has ascertained that whenever the people have suffered from any cause, the deaths have correspondingly increased, the births have decreased, and the mean duration of life has been shortened. In periods of prosperity, he has found results directly opposite to these. From 1747 to 1755, the annual mortality of Berlin was one in twenty-eight. Between 1762 and 1799, it improved to one in twenty-nine and a fraction. Here the beneficial change was retarded by the ravages, the losses, or disappointments of war; and from 1802 to 1806, it had retrograded to one in twenty-seven; but from 1816 to 1822, a period of exultation and tranquillity to the Prussians, the value of life took a remarkable leap, and the annual deaths fell to less than one in thirty-four.'

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[*] See Medico-Chirurgical Review, October, 1829, and Hawkins' Elements of Medical Statistics.

Thus, we find man surrounded by innumerable circumstances which cannot but give a decided direction to his disposition and propensities, which controul his existence, and undermine his health: he believes himself an agent, lordly and free, and yet he is the offspring of nature, like every other created object; he renders himself master of every thing, and yet he must be subservient to them, in his turn, wherever he may abide.*

Philadelphia, 1830.

ART. XI. *Observations on a New Variety of Peruvian Bark, with some Remarks on the Alkaline Bases, Quinine and Cinchonine.* By GEORGE W. CARPENTER, of Philadelphia.

PERUVIAN bark, one of the most important articles of the materia medica, embraces a number of species, in the medicinal qualities of which there is a vast disparity. It is therefore peculiarly unfortunate that its natural history and classification should be so enveloped in ambiguity, the nomenclature of the different species so inadequate and defective, and the various writers so opposed in their opinions on the subject, as to render the investigation of the student from books almost fruitless. The attention of our pharmacologists should be particularly directed to the cinchona, for the purpose of determining a specific classification of those species now occurring in commerce, and of establishing a nomenclature for them, by which each variety could be readily particularized, and at once understood by its name, which, in its present unsettled history, is impossible. In the Philadelphia Journal of the Medical and Physical Sciences, Vol. XI. I called the attention of the faculty to this subject, and described the several species of Peruvian bark which then occurred in commerce, as carefully and accurately as possible from specimens before me, so that the several species might be readily known and contradistinguished. I then suggested, as the most appropriate nomenclature, the names of the provinces in South America from which the different species were collected, as Calisaya, Loxa, &c. &c. and which, I am pleased to find, has become generally adopted, and is now the most familiar mode of distinguishing the barks of commerce. The terms Calisaya, Loxa, and Carthagena, conveys at once the particular kind of bark, and is perfectly understood, while the terms lancifolia and cordifolia involve an ambiguity as to the kind intended, inasmuch as several varieties of different qualities come under the same term, and it is impossible to determine which is intended: for example, the Calisaya and Carthagena, (the former the best, and the latter the worst species in commerce,) being both yellow bark, would come under the denomination of cordifolia; hence, if cordifolia was ordered, it would be difficult to determine whether the Carthagena or Calisaya was intended, or some intermediate quality.

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* Medico-Chirurgical Review, loc. cit.

Having devoted considerable attention to this valuable article of our materia medica, I have determined to describe every new species which I may meet with; and as there has appeared, since my description of Peruvian bark alluded to, a species not hitherto observed in our market, and unnoticed by any of the writers on the subject, I propose to describe it in the present communication. This bark I denominate Maracaibo, being brought from that place, generally in bales of from seventy to one hundred pounds, and the importation of it is likely to be continued, so that we may calculate upon a regular supply. This bark is much superior to the Carthagena or common bark, producing more than double the amount of saline matter composed of cinchonine and quinine; also a larger quantity of extractive matter than the latter, and is therefore of at least more than double the value of the latter. As the former can be purchased at the same price as the latter, it will be advantageous for the practitioner to be acquainted with its distinguishing characters, that he may be enabled to discriminate it among the different species and varieties of common bark.

It occurs in flat, short, and broken pieces, as if separated from the tree with difficulty, mostly of from one to three inches in length and half to one inch broad, and rather thinner than Carthagena bark. Occasionally small quills are found, the longitudinal edges folding together, forming tubes from a fourth to a half inch in diameter. It is of a deep yellow colour; the epidermis is extremely thin, smooth, of a light gray colour, and is generally removed from the bark. It may be distinguished from the Carthagena bark, by being more compact, by breaking with a short and cleaner fracture, and more particularly by its taste, which is much more intensely bitter. It is quite as strong a bitter as the Loxa bark, but does not possess the astringency of the latter. The internal layer is fibrous, but in a less degree than the Carthagena. This bark has only appeared in our market within a year or two, and as it will supply the place of a much inferior article, is of high importance to the profession.

The quality of barks depend unquestionably upon the product of cinchonine and quinine they respectively contain, and the separation of these alkalies, is a very valuable mode of discovering with precision the comparative quality of different species of bark. Different barks, however, produce various *proportions* of these two salts; thus we find the Calisaya produces most quinine, the Loxa most cinchonine, and the red or oblongifolia both these salts in nearly equal proportions. What is the comparative value of these too salts is yet a subject of controversy, a considerable majority however are in favour of the quinine, perhaps because most of them have not had an opportunity of employing the cinchonine. Dr. PARIS goes so far as to state that cinchonine is five times less active than quinine, others contend the reverse. In an interesting paper read before the Academy of Medicine at Paris, and published in the Bulletin des Sciences Medicales, for November, 1825, M. BALLY states that he has experimented upon the sulphate of cinchonine, with a view to determine its febrifuge qualities. He administered this sulphate in twenty-seven cases of intermittent fevers of different types, in doses of two-grain pills, giving three or four in the interval of paroxysms, by which treatment he cured the disease as effectually and as speedily as with the quinine, of which twenty-seven cases, there were sixteen tertian, nine quotidian, and two quartan. He remarks further, that the cinchonine has properties less irritating than those of quinine, and that consequently its employment should be more general and preferred in all simple cases; I believe few or no experiments have been made by the physicians of this country upon the medical properties of the cinchonine, it consequently must be very little known to them, from their own experience. It most certainly deserves at least a trial.

The sulphate of quinine, as it is generally termed, is not a perfectly neutral salt, being in the state of a sub-sulphate, and is only partly soluble in water. Its exhibition in this fluid is rendered much more eligible by the addition of a drop of sulphuric acid to each grain of the salt, which makes a perfectly transparent solution, and which I think from its obvious advantages, must entirely supersede the common formula of gum and sugar; a few grains of citric or tartaric acid will have the same effect as the sulphuric acid, and has been preferred by some to the former. Dr. Paris states, he lately saw a prescription in which the salt was directed to be rubbed with a few grains of cream of tartar, and then to be dissolved in mint water. This, he continues, is obviously injudicious, since the tartaric acid decomposes the sulphate, and occasions an insoluble tartrate, which is precipitated. With deference to Dr. Paris, I must differ from him on the following grounds:—The cream of tartar is objectionable, merely from the circumstance, that the active part of the compound may be obtained by a more direct and speedy process with the tartaric acid. The combination of cream of tartar and sulphate of quinine, in the above prescription does produce decomposition, as Dr. Paris has observed, but the virtues of the medicine is not the least affected by it, and the precipitate instead of being an insoluble tartrate of quinine, as he observes, is sulphate of potash; tartrate of quinine is a very soluble salt, and is held in solution, while the water becomes slightly turbid, by the precipitation of sulphate of potash, which however, from its extremely minute division is speedily taken up by the water, when you have a transparent solution of tartrate of quinine, and sulphate of potash, and as the latter answers neither a good nor a bad purpose, it of course can very conveniently be dispensed with, and therefore, as before stated, the tartaric acid should be preferred, as having a more direct and speedy action.

Philadelphia, Nov. 1830.

Art. XII. *Microscopical Observations on Portions of Animal Tissue, with Additional Experiments on Endosmose and Exosmose.*

By William W. Valk, M. D. of Providence, R. I.

THE most generally received opinion of the present day respecting the tissues or organs of animals, is that they "are essentially composed of agglomerated globular, or vesicular cells." The strongest proofs have not long since been given of this arrangement by Dr. Milne Edwards; and Dr. Togno observes, that every tissue can be solved into globules, which are every way *so similar*, that an observation with the microscope can discover *no difference* between *brain* and *liver*. I cannot, however, acquiesce in this doctrine of homogeneous structure, as to me it seems *contrary* to the experience of some of the greatest anatomists both living and dead.

The views of Dutrochet on this subject do not *essentially* differ from those of Haller, Hunter, Beclard, or Cuvier: all these authors having been satisfied of the "agglomerated globular, or vesicular structure." Beclard, however, has two opinions on this point, as may be seen on reference to his work—Additions a Bichat, pp. 15, 19, and 23, which I quote on the authority of Bostock.

In detailing my experiments with the *microscope*, I shall endeavour to describe appearances *as I saw them*, without entering into any speculative discussion. I may remark, that my microscope is one of the best of its kind.

Experiments.—No. 1. *Nov. 28th.*—A small portion of the intestine of a recently killed fowl, on the internal surface of which the villi were distinctly visible to the naked eye, was submitted to the power of a lens of 800. On bringing it to the proper focus, it appeared of uniform consistence and colour, opaque and tremulous like jelly. No other appearances were observed while it remained still, which induced me to move and touch it with a small steel needle, when I was surprised to observe *innumerable small openings* for some distance around the needle's point, and through which the rays of the sun were brilliantly reflected. When the needle was held perfectly still, or removed from the surface, the orifices closed up, (if I may so express it,) and the same uniform and dull appearance was again presented to the eye.

Nos. 2 and 3, were repetitions of the above with *other* portions of intestine, and the same results were manifested.

No. 4. A small piece of the crop near its larger orifice was placed in the focus of a lens of the power of 500. While *undisturbed*, I could not observe any peculiarity on touching its surface, and moving it gently from side to side, numerous orifices were seen in different clusters, and some single. which closed up, or became obliterated from the *circumference* to the *centre*, when the needle was held quiet or taken away.

These experiments were no less surprising than unexpected to me. yet I cannot allow myself to have been *deceived*, for the *orifices* or, *openings*. or *transparent vesicles*, (or whatever else they may be called,) were as *distinctly visible* as the paper on which I am writing: and I hope that some other gentleman will investigate the subject. and make his observations known.

If *pores* do exist in *animal membranes*. then Boyle was not so far out of the way of probability when he spoke of the "porositas animalium."

The experiments which I shall now proceed to detail. were made with a view to satisfy myself of the phenomenon of endosmose and exosmose, and I have only to observe here, that they were conducted with as much care as possible. and the results of *some* of them will be found at variance with those of Drs. Togno and Dutrochet.

Experiments—First series.—The abdominal contents of seven fowls, killed the day before. were perfectly cleaned, as also the crops. and parts of them selected for experiment.

Nov. 28th. 10 *A. M. Fahrenheit's Thermometer from 50° to 54°.* —No. 1. Two portions of intestine. each three inches long, were half-filled with gum Arabic solution,* ligatures carefully applied. and then placed in a basin of clear water.

No. 2. Two crops. No. 1 and 2, were half-filled with a similar solution. ligatures firmly applied to their natural orifices, and both put in a basin of water.

No. 3. Two cæca, each three inches long, were *quite filled* with water, their extremities tied, and then plunged in a solution of gum.

No. 4. Four portions of intestine, in an empty state, with ligatures on their extremities. were immersed in clear water.

After completing the above, I went on, and commenced the following, with a solution of the *carb. potassæ*—proportions ℥j—water ℥xij.

Alkalies—Second series.—No. 1. Two crops, No. 1 and 2, containing a portion of the solution, were put in water—No. 1 weighs 373 grains—No. 2, 354 grains.

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* The proportion of gum Arabic was ℥iss. to ℥viij. of water.

No. 2. Two cœca, containing a small quantity of the same solution, and weighing 100 grains, were also put in water.

No. 3. Two portions of intestine containing *water*, No. 1 weighing 34 grains, and No. 2, 46 grains, were put in the *alkaline solution.*

This done, I began with the *acids*—proportions ʒj—water ℥viij.

Acids—Third series.—No. 1. A cœcum containing *diluted acid,* and weighing 60 grains, was put in water.

No. 2. A cœcum, containing the *diluted acid,* and weighing 80 grains, was put in water.

No. 3. A cœcum, containing *water.*, and weighing 39 grains, was put in the diluted acid.

No. 4. A cœcum, containing *water,* weight 46 grains, was put in the diluted acid.

At 12 M. I commenced the following, with a solution of opium—5 grains to ℥ij. of water.

No. 1. A portion of intestine containing some of the solution, and weighing 60 grains, was put in water.

No. 2. A piece of intestine, containing water, and weighing 108 grains, was put in the solution of opium.

First Examination.—Nov. 29th, 9 A. M. Thermometer 40°, twenty-three hours having elapsed.

First series.—No. 1. Both portions of intestine *nearly* full. Endosmose.

No. 2. The two crops *remain stationary,* neither endosmose or exosmose having occurred as far as I can perceive. The ligatures were examined, and found tight. I cannot account for this; it is singular, and different from what I expected.

No. 3. The two cœca are *quite empty;* as they were *full,* rapid *exosmose* has occurred.

No. 4. *Two* of the *four* portions of intestine have become *nearly full,* the other two half-full. Endosmose.

Alkalies—Second series.—No. 1. The two crops were carefully dried and weighed. No. 1 weighs 665 grs.; has gained 292 grs. No. 2 weighs 527 grs.; has gained 173 grains.

No. 2. The two cœca were weighed together as before—weight 86 grs. loss 14 grs.—result not expected—ligatures tight. They ought to have *gained.*

No. 3. Intestine No. 1 weighs 36 grs.; *gain,* 2 grs. Intestine No. 2 weighs 509 grs. gain 4 grs. Endosmose instead of exosmose.

Acids—Third series.—No. 1. Weighs 60 grs. neither gained no lost.

No. 2. Weighs 85 grs.; has gained 5 grs.

No. 3. Weighs 39 grs.; has neither lost or gained.

No. 4. Weighs 44 grs.; has lost 2 grs.

With the solution of *opium* the result is as follows:—

No. 1. This weighs 63½ grs.: has gained 3½ grs. Endosmose.

No. 2. Weighs 100 grs.; has lost 8 grs. Exosmose.

All of the preceding were again placed in their proper vessels, the contents of which remained *unchanged*.

Before I examined the above experiments for the *second* time, I began the following, which is something similar to the experiments of Dr. Staples, and suggested by them.

8½ *P. M.* A solution of the hydro-cyanate of potash, in the proportion of ℈j. to ℥viij. of water, was put into a small glass vessel, over the mouth of which I carefully and accurately fastened a piece of the crop of a fowl. Into a tumbler I poured a small quantity of a solution of sulphas ferri, and introduced the one into the other, but not so deep as to allow the latter to rise above the edge of the crop. In *one minute* both sides of the membrane became spotted with a beautiful blue colour, and in fifteen the whole of the two surfaces was stained. At this time I put it aside to examine the other experiments.

Second Examination.—Nov. 29th, 9 P. M. Thermometer 44°, twelve hours having elapsed.

First series.—No. 1. One of these portions is *full*, the other not quite so; endosmose still going on.

No. 2. In the crops *no change* has occurred, they being to all appearance just as I filled them.

No. 3. The cœca are now quite shrivelled up; exosmose perfectly satisfactory; dismissed.

No. 4. Two of the portions of intestine are full, the other two nearly so; endosmose still continuing.

Alkalies—Second series.—No. 1. The two crops were again carefully weighed. No. 1 weighs 714 grs.; has *gained* 49 grs. No. 2 weighs 569 grs; has *gained* 42 grs.

No. 2. The two cœca now weigh 82 grs. having *lost* since morning 4 grs.

No. 3. Intestine No. 1 weighs 39 grs.; has *gained* 3 grs. No. 2 weighs 53 grs.; has also *gained* 3 grs.

Acids—Third series.—No. 1. Weighs 60 grs.; *no change.*

No. 2. Weighs 84 grs.; has lost 1 grain.

No. 3. This still weighs 39 grs.; *no change.*

No. 4. Weighs 42 grs.; has lost 2 grs.

Solution of Opium.—No. 1. Weighs 64 grs.; gain, *half* a grain.

No. 2. Weighs 98 grs. having lost 2 grains.

After this examination, *all* of the above were again placed in the same vessels, the water and solutions remaining *unchanged.*

Third Examination.—Nov. 30th, 9 A. M. Thermometer 43° *to* 44°.

First series.—No. 1. Both portions of intestine are now *quite full;* I weighed them and found their weight to be 160 grs. Water changed.

No. 2. These crops still remain "*in statu quo,*" as far as I can judge. I now weighed them; No. 1 weighs 440 grs; No. 2, 426 grs.; shall observe if there be any loss or gain of weight by evening. Water changed.

No. 4. All four portions are now full; they weigh 110 grs.; let them remain.

Second series.—No. 1. Crop No. 1 weighs 762 grs.; has gained 48 grs. No 2 weighs 604 grs.; has gained 35 grs. The water renewed.

No. 2. The two cœca weigh 75 grs.; have *lost* 5 grs. since last night.

No. 3. Intestine No. 1 weighs 40 grs.; has gained 1 gr. Intestine No. 2 weighs 54 grs.; has also gained 1 gr. The solution changed.

Third series.—No. 1. Weighs 57 grs. has lost 3 grs. Water and diluted acid changed.

No. 2. Weighs 80 grs.; lost 4 grs. Water and diluted acid changed.

No. 3. Weighs 38 grs.; lost 1 gr. Water and diluted acid changed.

No. 4. Weighs 42 grs.; *no change.* Water and diluted acid changed.

Solution of Opium.—No. 1. This intestine weighs 65 grs.; has gained 1 gr. Water changed.

No. 2. Weighs 96 grs.; has lost 2 grs. Solution changed.

Having now accomplished the third examination of the preceding, I proceeded to observe the change that had taken place in my experiment with the *prussiate of potash* and *sulphate of iron.* After a lapse of fifteen hours, I found that the *sulphate* had penetrated the coats of the crop by *endosmose,* and produced with the *prussiate* a *deep green-blue colour,* but *not a particle* of the latter salt had escaped by *exosmose.* In this Journal for February, 1830, Dr. JACKSON at page 286, observes, with respect to the experiments of Dr. STAPLES, that when the *prussiate* was the *contained* salt, "it *escaped* by *exosmose* externally, and formed Prussian blue by meeting with the sulphate of iron." Here then my experiment and this observation are at *variance,* for I placed the *prussiate in* the vessel, and confined it there by a portion of crop, and this being inverted in a solution of the sulphate, *endosmose* took place, the *sulphate entered* the vessel, and formed the blue colour *within* it. Is it not evident, that had the *least portion* of the *prussiate* "escaped," a blue colour would have been given to the *external* solution? From my experiment, I should infer, that animal tissues not only "*expel* saline matters by *exosmose*," but also *introduce* them by *endosmose*. But as this experiment was unsupported by others, I resolved to repeat it, and to make a *nearer* approach to those performed by Dr. Staples. Accordingly I procured *two crops* and *two pieces* of intestine, each three inches long, with which I commenced the following:—

Ex. 1.—*Nov.* 30*th*, 4 *P. M.* The two portions of intestine were rather more than half-filled with a solution of sulphate of iron, and then immersed in a solution of prussiate of potash. The ligatures were *carefully* and *firmly* tied.

Ex. 2.—8 *P. M.* The crops were partly filled with a solution of prussiate of potash, their orifices tied, and then put in a solution of sulph. ferri. As soon as the above were immersed, the coats of the intestines and crops became more or less blue, particularly the former, and this will almost always happen.

It being now time to examine my *other* experiments, I put the above aside.

Fourth Examination.—*Nov.* 30*th*, 9 *P. M. Thermometer* 48°.

First series.—No. 1. Both portions weigh 155 grs.; have lost 5 grs. since morning; dismissed.

No. 2. Crop No. 1 weighs 464 grs. having gained 24 grs. in twelve hours, and this has only become obvious by weighing it. No. 2 weighs 431 grs.; has only gained 5 grs.; dismissed—very imperfect.

No. 4. All quite full; weigh 119 grs.; gain since morning, 9 grs.

Second series.—No. 1. The first crop now weighs 832 grs.; has gained 70 grs. The second now weighs 636 grs.; gain, 32 grs. These are dismissed as satisfactory.

No. 2. The cœca weigh 78 grs.; have gained 3 grs.; dismissed.

No. 3. Intestine No. 1 weighs 42 grs.; gain, 2 grs. No. 2 weighs 54 grs.; stationary—unsatisfactory—dismissed.

Third series.—No. 1. Weighs 58 grs.; has gained 1 gr.

No. 2. Weighs 79 grs.; has lost 1 gr.

No. 3. Weighs 35 grs.; has lost 3 grs.

No. 4. Weighs 39 grs.; has lost 3 grs.; all dismissed, unsatisfactory.

Solution of Opium.—No. 1. Weighs 64 grs.; has lost 1 gr.

No. 2. Weighs 96 grs.; has remained stationary; dismissed.

Fifth Examination.—December 1st, 9 A. M.

On examining my experiments with the *prussiate of potash* and *sulphate of iron*, I found the following results.

Ex. 1. These pieces of intestine are deeply dyed on the *outer* surface; the liquor in which they were *immersed* is of a *dark blue colour*, but their *contents perfectly transparent.* From these appearances, it is sufficiently evident that the *sulphate* of *iron* has passed *from within outwards* by *exosmose*, and produced "Prussian blue in meeting with the prussiate of potash." So far then, *this* experiment *agrees* with those of Dr. Staples.

Ex. 2. These crops on examination have afforded additional evidence that "animal tissues" can introduce "saline matters" by *endosmose*, for the solution in which they were placed, remains as *clear* as at first. The most perfect *endosmose* has taken place, and the *sulphate* has penetrated the coats of the crops, and meeting with the *prussiate*, has formed the Prussian blue. Therefore, I hold it to be *proved*, that "animal tissues" can "expel" *some* "saline matters by exosmose," but that they have *not* this property with regard to the *prussiate of potash.*

A considerable *sediment* was left in the vessels in which the *crops* had been immersed. The strength of the solutions was 30 grs. of the salts to ℥viij. of water.

Dr. Jackson has stated, that when the *prussiate* was introduced into the "small sacs," it was *expelled* by *exosmose*, but as I have not been fortunate enough to find it so; where lies the error?

All of my experiments have been performed in the *most careful manner* with intestines, cœca, and crops of fresh-killed animals; my ligatures were of waxed silk, and they were as cautiously applied as possible.

Were my solutions too strong, or was the temperature of the atmosphere too cold? Be the causes what they may, it is certain that *some* of the results which I have obtained, are contrary to my own expectations, and to *some* of the experiments of Drs. Togno and Dutrochet.

I now claim the indulgence of a few observations, and shall make them as brief as possible.

The No. 1 of my first series was throughout a very good instance of the action of *endosmose*.

No. 2. In this I was disappointed, the crops remaining to all appearance stationary until the *fourth* examination, when, by weighing them, I found in one a gain of 24 grs.; in the other, a gain of only 5. I know not why this so happens, and felt quite unsatisfied.

No. 3. A very perfect and beautiful illustration of the action of *exosmose.*

No. 4. These were also very good examples of *endosmose*, but as they were originally empty, they offer no illustration of *electrical* agency.

Second series.—No. 1. This was the best example of endosmose among the whole, and I think the alkalies better calculated to produce it than a solution of gum.

No. 2. These are out of order; instead of endosmose we had exosmose, and at the last examination only were they found to have gained at all.

No. 3. These are also wrong; here we had endosmose, when, according to Drs. Togno and Dutrochet, we ought to have had exosmose.

Third series.—No. 1.

Nos. 2, 3, and 4. All the results are very unsatisfactory. See Togno, in this Journal, No. VII. May, 1829, p. 81—acids, Ex. 3.

With the solution of opium I have obtained such results as would tend to show that this substance does not produce its effects by absorption, but solely by its action on the nerves of the part with which it is in contact. This is, however, but an opinion.

I do not now wish to enter into a discussion on the merits of Dr. Dutrochet's discovery, or respecting the cause which produces these singular actions. It appears to me, however, that neither electricity or galvanism are necessarily connected with the subject. In conclusion, I beg leave to state, that I differ with Dr. Togno as regards the positions laid down in his 2d, 3d, 8th, 10th, 12th, 17th, and 18th observations; for which, see his paper, as already quoted.

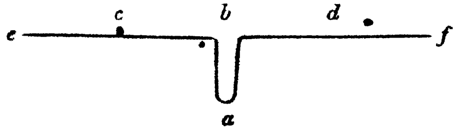
Providence, R. I. Dec. 1st, 1830.

Art. XIII. *Remarks on a Contrivance for Draining the Thorax of Liquids, excluding at the same time the Admission of Air.* By Samuel A. Cartwright, M. D. of Natchez.

The fact, that liquids can be conducted out of the thorax by a contrivance impervious to air, is new in surgery, and may be found important in the treatment of many cases of wounds of the lungs, empyema, and dropsy.

By a letter now before me, from Dr. J. M. B. Thompson, of Louisiana, I am informed, that in three cases of hydrothorax he conducted the water out of the cavity of the chest, prevented at the same time the ingress of air, and cured his patients speedily and effectually.

A flexible metallic rod, or piece of wire, about the thickness of a common probe, and eight or ten inches in length, should be bent in the middle, so as to form a duplicature, as here represented.



The double part of the wire, *a b*, is introduced through a small incision made into the chest. The parts of the wire *c d*, lie close on the integuments of the thorax. Adhesive strips are applied over the wound and wire, to prevent the admission of air. A small part of the extremities of the wire, *e f*, should be left uncovered by the strips. The duplicature of the wire, *a b*, should be of no greater length than barely to reach the cavity of the thorax, without penetrating within that cavity. Any liquid which may become extravasated within the cavity of that side of the chest to which this instrument is applied, will pass along the wire *a b c*, and *a b d*, and make its exit drop by drop at the extremities of the wire, *e f*.

The atmospheric air will be entirely prevented from entering the cavity of the thorax by the adhesive strips. Nor will the strips covering the wire prevent the effused fluid from passing along the surface of the wire under the adhesive plaster, and dropping out at its extremities. I state this fact on the authority of Dr. Thompson. The lung, on the side to which the instrument is applied, being unoppressed by water within, or atmospheric pressure from without, continues to contract and expand; during the period a constant aqueous discharge is kept up from the cavity of the thorax. For the wire conducting off the hydropic fluid as fast as it is effused within the bag of the pleura, the oppression to respiration, from the accumulation of water, is thereby prevented. The resilience of the lung being thus preserved, greatly facilitates the cure, by placing the system in a favourable condition to be benefited by medicines.

In the event of both bags of the pleura containing water, pus, or blood, I see no reason why the operation of paracentesis thoracis should not be performed on one side, the fluid evacuated, (and if there be a probability of its re-accumulation,) the instrument under consideration applied, and the wound made air-tight by the adhesive plaster; and a similar operation could forthwith be resorted to on the other side. Thus, as fast as the fluid might be poured out within the thoracic cavities, the wires would conduct it out—the free play of the lungs being thereby preserved, the arterialization of the blood would continue to take place, and to render the system more capable of enduring the original affection, on which the preternatural effusion might depend. In cases applicable for the contrivance here suggested to the profession for their consideration, it has been the practice to resort to repeated operations, to leave a *cannula* in the wound, or to abandon them as incurable. Repeated tappings afford only temporary benefit, while the tendency to re-accumulation continues; and the cannula, by admitting the external air within the cavity of the thorax, collapses the lung, and suspends its important function.

Natchez, 1830.

XIV. *Remarks on the Operation for the Hare-Lip.* By Zadoc Howe, M. D. of Billerica, Mass.

Having observed that the operation for the hare-lip generally leaves more or less of the original deformity, I several years ago adopted a mode of operating a little different from that described by surgical writers upon the subject.

The improvement consists in making two curved incisions, instead of two straight ones, in such a manner that the opening when ready to be brought together, shall resemble half of a leaf of the apple tree, cut transversely, rather than the letter V, as directed by authors.

I first used this kind of incision in a cancerous affection of the under lip. The disease lay on the lower part of the lip, and a little down upon the chin; it was thought expedient to cut through the lip for the sake of uniting the parts by the first intention; the curved incision was used at the time, rather with a view to save the destruction of sound parts, than any improvement in operating in other cases. I was gratified with the appearance of the lip when healed, and have always adopted this mode of operating since in the hare-lip, whenever circumstances would permit.

After the operation, the edge of the lip, instead of drawing in, will turn a little out, giving it more of a natural appearance; and as the perpendicular cicatrix will be somewhat lengthened, no notch will appear in the edge, a circumstance which is very liable to happen after this operation performed in the usual way. In short, it leaves rather less deformity, which all will allow is an object of some importance in operations upon the face.

I suggested the substance of these remarks to the late Professor Smith, of New Haven, several years ago. He procured a small pair of curved forceps, with a screw in the handles, on the principle of those used for breaking a stone in the bladder. His intention was to fasten the instrument upon the lip, and cut by the side of the blades. How the doctor succeeded with his instrument, I never heard.

I have always cut by marks made with ink; and in the hare-lip, always carry one interrupted suture, with a small needle, as high as possible in the nostril, that no fissure may appear when the head is elevated. One small gold pin, a little curved, together with adhesive straps, completes the dressing.

I frequently give the incision a greater degree of curvature upon one side than the other, for the sake of saving the parts—always taking care to make the sides exactly correspond in length, and withdraw the pin in about sixty hours.*

Billerica, Dec. 1830.

ART. XV. *Cynanche Tonsillaris, terminating Fatally by Hæmorrhage.* By SAMUEL WEBBER, M. D. of Charlestown, N. H.

IN the Medico-Chirurgical Review for July of the current year, I notice several cases of hæmorrhage subsequent to cynanche tonsillaris or ulcerations of the throat, one of which proved fatal, two were barely saved by the somewhat formidable operation of tying the carotid artery, and two, after great danger and prostration, by the use of astringents combined with other treatment. These are related as unusual cases, and are in fact the first of the kind I have ever seen in print, though probably other cases have occurred, since I have myself unfortunately met with one which terminated fatally with great suddenness, and which the reading of those above-mentioned has induced me to send you for insertion in the Journal.

The case occurred late in the autumn of 1825, in the person of a young woman of about eighteen years of age, who was attacked with a severe cynanche tonsillaris. Thinking that it would get better, as this complaint frequently does, with merely domestic remedies, no professional assistance was had until the third day, when I was called in. I found the throat very much swelled, so as greatly to obstruct deglutition; any unguarded attempt to swallow being followed by severe spasmodic contraction of the fauces, and rejection of the fluid through the nostrils. The face was greatly flushed, with severe head-ache, and high symptomatic fever.

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* The preceding ingenious method of operating for hare-lip, lately suggested itself to Dr. J. R. Barton, of this city, and he actually put it in practice, in September last, in the case of a boy, in the Pennsylvania Hospital. Dr. Barton supposed the method to be original with himself.—ED.

Free venesection was employed, succeeded by an active emetic, a mercurial cathartic, salines and antimonials, rubefacient liniments to the throat, pediluvium, and, on the next day the febrile symptoms being somewhat mitigated, a large blister was applied to the throat, while warm and soothing gargles, and the inhalation of steam, were used, followed by acid astringent gargles. These means had the effect of relieving the extreme irritability, tenderness, and in some degree the swelling of the fauces, but did not prevent suppuration, which was evidently established on the fourth day. The abscess in the left tonsil broke on the fifth day, and that in the right, which was less swelled, a day or two later. Great complaint was made of the extremely bad smell and bad taste of the discharge; and the relief obtained as to ease of swallowing, and the like, not being so great as is usual in such a case as this had appeared to be, the outside of the neck was carefully examined, and a small descending bag of matter was found situated in front of the thyroid cartilage, immediately beneath the skin. This was opened by the lancet, and a tea-spoonful or more of extremely fetid, thin, ill-conditioned pus discharged. A probe inserted through the opening passed obliquely upwards and backwards towards the right tonsil, apparently just in the outside of the extremity of the os hyoides. No blood was discharged except a few drops from the division of the skin. So fetid and penetrating was the odour of the pus, that it adhered to my fingers, though repeatedly washed for several days, and to my gloves which I put on on my way homeward, for three or four weeks.

On the next day after this, the patient seemed to be better, but early in the morning of the second day, her sister, who slept with her, observed her seemingly troubled with something in her throat, and was told, on inquiry, that some phlegm was there, which she wished to raise. Making an effort for this purpose, a small quantity was first raised and rejected; then a mouthful or two more tinged with blood, then clear fluid blood, which immediately after burst forth from the mouth and nostrils in as large a stream as they were capable of discharging, when the unfortunate girl sank back on the bed, with the blood still flowing copiously from her mouth, and died before an effort could be made to summon assistance out of the family.

Circumstances at the time prevented an examination, though I wished for one very much, as I was extremely at a loss to account for the hæmorrhage; not supposing at the time that suppurative inflammation of the tonsils would destroy the arteries of the part where it took place. The young woman was fond of singing, and took a prominent place among the members of our village choir; singing oftentimes with apparently great and painful exertion. It occurred to me at the time, among other suppositions, that some aneurism might have been formed, which burst at this time under the exertion above-mentioned, or that the texture of the lungs yielded, having been weakened by undue exertion. It now seems most likely that the coats of the carotid, or of some large branch, must have been injured by the abnormal suppuration, and have given way. Some very large vessel must have been needed to supply the great discharge so instantaneously ensuing.

Charlestown, N. H. Oct. 30th. 1830.

Art. XVI. *Case of Pertussis immediately arrested by the use of Belladonna and Hydrocyanic Acid, as used by Dr. Kahleiss.* By William W. Valk, M. D.

In the eleventh number of this Journal, p. 238, we are informed that a combination of "belladonna, ipecacuanha, and sulphur, had been employed by Dr. Kahleiss with the greatest success in *one hundred cases* of pertussis."

To satisfy myself with regard to this statement, and to test the virtue of these remedial agents, I resolved to give them a trial in the *first* case that offered. I was left in the dark, however, as to the *proper time* of commencing the treatment, and in this respect had to depend upon my own judgment. It affords me pleasure, however, to state, that in the only trial I have made of the treatment recommended by Dr. K. it has proved speedily successful.

About three weeks ago, my infant son, (near seven months old,) became troubled with a cough, which appeared to be the effect of having taken cold; I remarked, however, that he *only coughed while asleep*, not being *at all* affected when awake. This state lasted for near twelve days, unaccompanied with the *least* obstruction in respiration, or having any symptom of tracheal or bronchial secretion. At this time the cough became more troublesome, was attended with copious mucous secretion, occurred at regular intervals of time, and had the *peculiar sonorous sound in inspiration*, which has given to the disease its characteristic name. I treated it at first as a common catarrh, and after the accession of symptoms denoting the change already mentioned, an occasional emetic was given to throw off the accumulation of mucus in the air-passages, which was invariably swallowed during the fits of coughing. No other plan was pursued for several days, and the fits of coughing becoming more distressing, but yet unattended with "pulmonary congestion," I resolved to try the "belladonna, &c." and accordingly prepared the following formula:—1. ℞. Pulv. rad. belladon. gr. 1¼; pulv. Doveri, gr. 2½; sulph. præcip. ℈j.; sacch. alb. ℈ij. M. div. in chart. 20.—One powder every three hours, and between each dose twelve drops of the following:—2. ℞. Aqua chamomile. ℥ss.; syrupi simplex. ʒij.; acid pruss. 6 drops. M.—These prescriptions are less in proportion than those of Dr. K. as his are for a child two years old, and nearly *four times* the above quantity for the first formulæ, and *twice* as much for the second. For *three* days, these medicines were given with *care* and *regularity*, when the relief afforded being sufficiently evident, they were omitted, (on the 11th Nov.) and from that time to the present, (18th,) the child has continued perfectly well.

The effects of these remedies were speedily manifested, (in thirty six hours,) and I have every reason to believe that they will prove of singular efficacy in *cutting short* the progress of this distressing disease. "If the opinion prevail, that hooping-cough *will* have a definite duration, all exertions to abridge its career will be paralyzed, and the poor suffering infants and children will be deprived of even the *moderate* aid it is now in our power to give." "As regards ourselves, we are decidedly of opinion, that its duration may as certainly be *shortened* as the march of fever." Such is the opinion of Dr. Dewees, and I am fully satisfied of its correctness, being convinced that in the instance now given, I put a *complete stop to the progress of the disease*, and that too in a very short space of time. The absence of fever and inflammatory symptoms not being sufficiently obvious, prevented my using any other remedial means than those mentioned. In conclusion, I may be permitted to recommend a trial of Dr. Kahleiss's treatment, for I believe that it will be found eminently serviceable; and although I have but this *one* case to offer, it is at least of so much interest to the profession, as to warrant an adoption of the practice. The "efflorescence and dilatation of the pupil," mentioned by the doctor as happening in some cases after the employment of these remedies, were not observed—in the event of its happening, however, a suspension of the treatment for a few days, and a diminution of the proportion of belladonna, will be necessary.

P. S. I am at a loss to account for my son's having the hooping-cough at this time, as he was not exposed to *contagion*, nor am I aware that the disease exists in this town. For some valuable remarks on this subject, I would refer to Dewees's Practice, Vol. I. pages 375–6–7.

Providence, R. I. Nov. 19th, 1830.

REVIEWS.

Art. XVII. *Pyretologie Physiologique, ou Traité des Fièvres considerees dans l'Esprit de la Nouvelle Doctrine Médicale.* Par F. G. Boisseau, Doct. en Méd. de la Faculté de Paris, Membre des Academies Royales de Medicine de Paris et de Madrid, &c. &c. Troisieme edition, 8vo. pp. 722. Paris, 1826.

Boisseau is undoubtedly among the cleverest of the disciples of the physiological medicine. Endowed with a mind at once acute and comprehensive, he very early saw whither were leading the novel doctrines of his immortal preceptor, and he was among the foremost to examine them, and to hazard a judgment on the soundness of their characteristic features. That judgment, as recorded in the *Journal Universel*, at a time when these doctrines were scarcely known beyond the walls of Val-de-Grace, is no ordinary commendation. But Boisseau presents other and higher claims to distinction; he has himself rendered efficient aid in advancing the physiological medicine, and so materially modified the doctrines of its founder on the subject of fevers, as to merit a rank among original writers. His *Pyretology* is not merely the most remarkable performance that has as yet appeared among the disciples of Broussais, but is really the ablest and most satisfactory exposition of the pathology of fevers with which we are acquainted. It would be a difficult and onerous task to compare it with the numerous monographs that already exist on this subject, and still more so, to point out the different writers who have treated upon or aided in developing the doctrines which are advanced in the volume before us; for almost every writer on pathology has offered some suggestions on the nature of fevers, and it would be surprizing indeed if some among them had not thrown out hints, bearing a greater or less degree of resemblance to the doctrines herein inculcated, without perhaps such hints having had at the time any influence on the current opinion of physicians. We shall, therefore, on the present occasion, confine ourselves to a few passing remarks on the general state of pyretology, previous to the era of the physiological medicine, and note such incidental approaches as have been made in different periods to the *new doctrine* by others, before entering *in res media*, and laying before our readers the subject matter of Boisseau's volume.

Physicians with a few rare exceptions, from Hippocrates down to Broussais, taught that fevers were general affections of the whole system. Many of them indeed allowed that at the same time some one part was more affected than the rest of the system. Pinel, the Cullen of France, and whose medical doctrines have had a more extended influence on the continent than those of any modern, if we except perhaps Brown, makes six genera of idiopathic fevers, to each of which he assigns a part or organ more especially affected than the rest of the system. For instance, he places the inflammatory or angiotenic fever in the vascular system; the gastric or meningo-gastric in the gastric organs; the mucous or adeno-meningic in the mucous membrane of the intestines; the adynamic in the muscular system; the ataxic in the nervous system: and the adeno-nervous in the glandular and nervous systems. Van Helmont places fevers in the duodenum. Hoffmann and Cullen make them to consist in a spasm of the nervous and fibrous systems. Boerhaave and Sydenham place them in the vascular system. Galen and his numerous followers, in the heart, as the centre of the blood's motion and the dispenser of the animal heat—the Hippocratic essence of fever. Yet they all believed in the idiopathic character of fevers, and denied their primitive local origin. On the other hand, several eminent writers, among whom may be named Berserius, Lieutaud, and Fordyce, have declined giving any opinion on their essential nature, believing with Selle, the author of the *Elementa Pyrétologiæ Methodicæ*, a work remarkable for its erudition, sound observation, and practical deduction, "that the source whence all the phenomena of fever spring, is so obscure that he did not pretend to reach it." Among those who have contributed to fix the attention of physicians on the local origin of fevers, may be enumerated Bartholin, Baglivi, and Reda, who showed by dissection that the stomach, and more especially the intestines, were inflamed in malignant fevers, which inflammation, they contended, constituted the cause of these fevers. Bordeu went further, and maintained that all fevers had their seat in the irritation of a viscus. The service that Prost has rendered this department of medicine by his *Médecine éclairée par l'observation et l'ouverture des corps*, has never been duly acknowledged by the profession. Even Broussais criticised his work, which appeared in 1804, with severity. He was accused of tracing all his fevers to the intestinal canal—an imputation which he may now consider as his best title to distinction. Chirac and Clutterbuck both laboured to prove the primitive seat of fever to be in the brain, and the latter has, in our opinion, enforced in a more absolute and decisive manner, than any other down to the time of Broussais, the secondary and local character of all fevers, besides elucidating some of the general laws which regulate their development and progress. Though few at this time will agree with him in his main views, none we are certain, can rise from the perusal of his work without edification, and we will venture to say, that it is among the few of the vast mass of modern medical productions, that will not speedily be swept away into oblivion. In recalling the chief of those who have prepared the way for the propagation of the physiological medicine, by showing the local origin of fevers, on which the whole system hinges, we must not forget DARWIN, nor our own learned and modest MILLER. Dr. Darwin's doctrine of direct and reversed sympathies, governed by the sensorial powers of association, and the laws of associated motions, prepared the way for the admission of the local seat and sympathetic nature of all febrile diseases. But he was not himself fully aware of this consequence, and the credit of first pointing it out, in a clear and distinct manner, belongs to the late Dr. Edward Miller of New York, whom Broussais allows "to have been the first, as far as he knew, to give to the stomach its just physiological importance. He pursued the true route; under his pen the symptoms of fevers, and the mode of action of remedies, have acquired an interest which they had not possessed in the most celebrated classic writers." How then is it possible, he continues, that he failed to lay open the whole physiological doctrine as it is at present taught? It was that he was still enslaved by the doctrines of Brown and the ontology of the schools. As early as the year 1799, Dr. Miller published *Some Cursory Observations on Yellow Fever*, in which he endeavoured to draw a parallel between the effects of acrid and corrosive animal and mineral poisons on the stomach, and the miasms which produce pestilential and malignant fevers. He contended that the miasms producing yellow fever pestilence were taken into the stomach with the saliva, and there gave rise to effects not unlike to such as were produced by the ingestion of arsenic and other corrosives, as exhibited on dissection.

"In the worst cases," he observes, "both of poison and pestilence, the febrile part of the symptoms excites little attention. After all our researches into the nature of fever, it seems primarily to consist in the stimulation by poison, miasmata, or otherwise, of a particular part of the system, and in the propagation of morbid affection afterwards, from the viscus or part originally invaded, to the heart and arteries and other parts of the body. If this be just, according to the theory of a celebrated writer, (Darwin,) fever is merely topical at first, and subsequently a disease of association."

After recounting the successive order of the febrile phenomena, he observes—

> "Hence it appears that fever is originally local; and though, in its progress, it is extended over the whole body, we are still to regard it chiefly as symptomatic of the stimulus applied to a particular part."

Subsequently he changed his opinion on the mode of operation of febrile miasms, and in *Some Remarks on the Importance of the Stomach as a Centre of Association, &c.* published in 1802, acknowledges his mistake in referring the gastric affection in fevers to the primary and immediate action of the febrile poison upon the inner surface of the stomach and duodenum, and inculcates the doctrine of the sympathetic character of fever: that the stomach is the grand central organ of association and sympathy, the first and principal sufferer from the noxious causes which produce fevers, and the best adapted, from its extraordinary powers of sympathy, to extend their poisonous effects to other viscera—the most liable to sustain the burden of the disease, and to undergo the most fatal disorganization. Well may Broussais have observed that such views trench upon his own peculiar doctrines. It was only wanting for their author to have understood the important concern that inflammation has in the production of general disease, to declare the truths of the physiological medicine. But our business is with Boisseau and his Pyretology—a work which claims no inconsiderable praise in modifying and perfecting these doctrines, and we shall now endeavour to present our readers with an abstract of its contents in as condensed a form as is consistent with a faithful exposition.

The Pyretology is preceded by a summary view of the general principles of the physiological medicine, in which the author differs in some few points from the founder of this modern school. But the great discrepancy that exists between them—a difference which distinguishes the doctrines of the Pyretology, consists in assigning different local origins to fevers. Boisseau denies that all those fevers heretofore considered by authors as essential or idiopathic, do arise from an irritation of the stomach and duodenum, but that one form of them has the irritation seated in the sanguineous system, another in the cerebral organ, &c. The following constitute the chief grounds of his dissent:—1st. That the causes of fevers do not act merely on the gastro-intestinal mucous membrane. 2d. That although this membrane may often receive the direct or sympathetic influence in the first instance, it is not the only organ thus implicated, and moreover it is frequently affected only in a very feeble degree. 3d. Other organs besides this membrane can act sympathetically on the heart and give rise to febrile symptoms. 4th. A careful observation of the causes and symptoms prove this membrane in some instances to be unaffected, or else too slightly so, to account for the development of the disease. 5th. We not only find this membrane in some cases after death exhibit no traces of disease, but discover serious morbid alterations in other organs. These objections are not so valid as they at first view might appear, for they might all be admitted, and yet the grand principle of the physiological school, that local irritations only become general febrile affections through the associating medium of the stomach, remain unrefuted. After all, the difference in dispute may be narrowed down to this simple proposition: is the stomach invariably affected primarily, or is it sometimes affected secondarily, in those fevers which have heretofore been considered as idiopathic or essential? However this question may be resolved, and it is one of minor consequence, all parties will allow that irritations of a certain degree of intensity, of every organ of the economy, will excite a general febrile affection: and the fever so excited, may be considered to partake of a fever or a phlegmasia, according to the hypothesis that we may adopt. Whatever may be the actual share that the stomach exercises in the production of fevers, there can be no doubt that in different fevers different organs are unequally affected from the rest of the system, and on this position Boisseau has founded his classification of fevers, which is substantially the same as the arrangement long ago established by Pinel, and which is perhaps the best that has as yet been proposed. The following is the order of the arrangement adopted, and the succession in which the different subjects are treated. 1st. Inflammatory fever. 2d. Gastric fever. 3d. Mucous fever. 4th. Adynamic fever. 5th. Ataxic fever. 6th. Typhus. The yellow fever and the plague are treated as varieties of ataxic fever, then follow successively, intermittents, remittents, chronic (hectic) fever, and the work is closed by some observations on fevers in general as distinguished from phlegmasiæ.

1st. *Inflammatory Fever.*—This is the synocha of authors. A form of fever generally so well understood, and so easily recognised at the bed-side, that we may dispense with transcribing the author's detailed description of it, which is a repetition of what may be found in our works of constant reference. Its predisposing causes are youth, robust manhood, sanguineous plethora, with marked vigour and development of the arterial system. It consists of intense irritation of the heart, and most commonly of some other organ—an intenser degree of irritation and force of action than occurs in other uncomplicated fevers; and yet not exhibiting any of those symptoms which indicate a phlegmasial affection. It holds, in short, a mean state between febrile irritation and inflammation, much disposed from aggravation to run into the latter form. The author objects to the doctrine of Broussais, which considers this form of fever to arise invariably from a gastro-enteritis. He admits that the digestive organs, from habitually having aliments and drinks applied to them, are a very frequent cause of fevers, and that the close sympathy which exists between these organs and the cutaneous surface, renders them the most ordinary seat of these affections. Still, on the other hand, it is contended, that cases do occur which show little or no inappetency for food, nor any thirst, nor that state of the tongue which attends gastric disease. If then it be contended, that in a great majority of cases, the irritation is seated in the digestive tube, conjoined with irritation of the heart and arteries, the distinction here attempted to be set up, is quite immaterial or arbitrary, unless it can be shown that in some instances the stomach remains undisturbed, which can hardly be done even in decided phlegmasial disease: for where another organ shows prominent and decided symptoms of irritation, Broussais would consider the disease as one of the phlegmasiæ of authors, and Boisseau allows all such cases to be very liable to assume that form, from a variety of causes. Sometimes these fevers will run their course without our being able to ascertain the seat of the affection; in other instances, the signs of irritation of the stomach, brain, uterus, kidneys, or joints, &c. are so evident as to leave no doubt on the subject.

Treatment.—As these fevers then consist in an intense irritation, verging to inflammation, of some organ or part, occurring in habits labouring under arterial excitement, and predisposed to run into inflammatory action, the general indications of treatment are two-fold: 1st. To correct the predisposition of habit by general depletory and antiphlogistic means; and 2d. To combat the local irritation by applying the same means as directly as possible to the part affected. The chief reliance is to be placed on blood-letting, both general and local, with the observance of the most abstemious diet, especially if the stomach be the organ prominently affected; at the same time using emollients, both internally and externally, and carefully avoiding the giving of any irritating or stimulant remedy, as emetics, cathartics, tonics, &c. Where the head or uterus is the part affected, revulsion to the lower extremities, either by sinapisms or the detraction of blood from the feet is a most efficacious means, and is not to be neglected. Where the chest is affected, the drinks should be sweetened, or mucilaginous and warm; but when the stomach is the organ implicated, cool and acid drinks will in general be found to agree best, at the same time employing emollients externally.

2d. *Gastric Fever.*—This term comprehends those fevers which occupy a middle place between gastric inflammatory, and adynamic fevers. The greater part of them exhibit bilious symptoms, and are hence commonly called bilious fevers. As inflammatory fevers occur in the young and sanguine, these usually attack adults, and the aged, such as are much in the habit of taking stimulating ingesta, are of the bilious temperament, and especially such as are much exposed to a hot and humid atmosphere. They are divided into four grades. The first is characterized by severe gastric symptoms without bilious affection, as epigastric distress and pain, red, pointed tongue, inappetency for food, thirst, mucous vomitings, hot skin, frontal pain, constipation, pale, scanty urine, &c. The second combine with the above symptoms a train of bilious phenomena, as yellow fur on the tongue, bitter taste in the mouth, nausea, vomiting of bilious matters, yellow suffusion of the skin and conjunctivæ, and high-coloured urine. The third differs from the preceding in having the irritation seated in the intestines, especially the colon, instead of the stomach, without other bilious symptoms than what is indicated by the alvine evacuations. This is the entero-hepatitis of authors. The fourth is a combination of the two preceding, and sometimes constitutes in its aggravated form a high degree of cholera. This grade may be considered a gastro-entero-hepatitis. Those gastric and intestinal derangements, commonly called bilious vomitings, bilious diarrhœas, and cholera morbus, appertain to these fevers, and in their state of aggravation are identified with them.

Treatment.—The great point in the treatment of the different varieties of these fevers, is to avoid the giving of vomits and purges, which are calculated to do serious injury, and even often to render them fatal. It is not to be denied however, that such remedies do sometimes remove the disease suddenly, and in other instances produce a temporary alleviation; but they can never be depended upon, or given without risk, as long as the gastric irritation subsists together with the febrile symptoms. In the first and slighest form of gastric derangement, (indigestion,) all that is necessary is to put the patient on warm diluent drinks, either sweetened or rendered slightly aromatic, and oblige him to abstain entirely from taking any food. In the severe forms of cholera, leeching the abdomen may be advantageously conjoined with mucilaginous diluents, abdominal fomentations and revulsion to the lower extremities. When the febrile grades presents much intensity, our principal reliance is to be placed on leeching the abdomen, the flow of blood solicited by warm fomentations or cataplasms, and the operation repeated again and again, till some impression be made on the disease. The drinks should be mucilaginous or acid, taken cold, and only in small quantities at once, and even cold water allowed, if preferred. The bowels are to be emptied by mild enemata merely, and the patient made to observe the most rigid abstinence, to avoid all causes of excitation, and only allowed to take aliment when the pulse has lost its frequency, and the skin its heat.

3d. Mucous Fever.—This form of fever occurs most usually in children, old persons, females, and such as are of a lymphatic temperament, and feeble habit of body. Its causes are the habitation of low, damp, and ill-ventilated apartments; cold conjoined with moisture; unhealthy and insufficient nutriment; the abuse of vomits or purges; prolonged fatigues; the depressing passions, &c. Its seat is the mucous membrane of the stomach and intestines. Its characteristic symptoms are white, humid tongue: copious secretion of viscid saliva; fetid breath; little thirst; inappetency for food, with nausea, and often vomiting of glairy acid matters; bowels sometimes constipated, and then again affected with mucous discharges; urine pale; heat of skin trifling in general, and the pulse for the most part weak, intermitting and slow, alternating with evening paroxysms of greater action. These fevers are often tedious in their course; are much disposed to relapse, or to become complicated with some chronic affection, as pulmonary inflammation, diarrhœa, or hydropic effusion, and thus prove fatal. The notion generally prevalent, that these fevers arise from a general atony of the system is objected to. It is contended, that all the causes are irritant, and if they produce a peculiar modification of disease analogous to catarrhal affections, it arises from the predisposing habit of body, and the character of the exciting causes, as cold and moisture, unwholesome indigestible food, &c. which are the common causes of catarrhal inflammations.

Treatment.—As these fevers consist in an irritation of the inner coat of the stomach and intestines, especially of their mucous follicles, the mode of treatment is very much the same as that laid down for gastric fever, except that the local blood-letting is not to be carried to the same extent as in those cases. The drinks should be warm, rather acid or sweet than mucilaginous, or even slightly aromatic, and considerable attention be given to produce revulsion to the cutaneous surface, by the use of heating and stimulating applications, which constitute a means of peculiar efficacy, and is indeed the most that can be done in these tedious fevers.

4th. Adynamic Fever.—This order was first established by Pinel. Under it he includes all fevers which exhibit alarming symptoms of debility, languor, and prostration of the vital powers, as feeble pulse, stupor, mild delirium, or wanderings, diminished energy of the brain and organs of sense, difficult deglutition, and involuntary dejection of the alvine and urinary excretions, conjoined with that group of symptoms which are usually thought to indicate a putrid tendency of the system, as brown or black fur of the tongue; black sordes around the teeth; fœtid breath; fœtid evacuations; petechiæ; passive hæmorrhages, &c. Although this form includes the greater part of the putrid fevers of authors, it differs from that division of fevers in making an asthenic condition to constitute an essential character of the disease.

M. Boisseau passes in review the symptoms and causes of these fevers, as set down by Pinel, and makes a physiological analysis of them, from which he draws the following conclusions. 1st. That the greater part of the symptoms announce increase of force, or a state of irritation, as is indeed admitted by Pinel himself, when speaking of these symptoms as appertaining to other diseases. 2d. The symptoms of debility and prostration of the cerebral, circulatory, and muscular systems, may either arise from the irritation of these systems, or from the sympathetic irritation of another organ, especially after long-continued action and protracted disease. 3d. The feebleness of one or more organs is no proof that all are enfeebled; for some causes, as cold and moisture, deleterious gases, &c. while they debilitate either directly or sympathetically one part, set up at the same time violent irritation in some other. 4th. The exciting causes of these fevers most commonly irritate the gastro-intestinal membrane in the first instance, and to so great a degree as to diminish the functional activity of the brain, circulatory and locomotive systems, or else these organs are sympathetically irritated by the primitive affection. 5th. That these fevers are frequently the aggravated forms, or fatally terminating stage of synochal, gastric, mucous, and indeed of all primitive or secondary fevers, which pass into this form, either from sympathetic irritation of the brain, or from an asthenic state of one or more organs, induced by a prolonged or intense irritation of some other. 6th. That autopsic examinations have shown, in a very large majority of these cases, the seat of the irritation to have been in the mucous membrane of the stomach and intestines, which exhibited marks of sanguineous congestion, of thickening of their coats, sometimes gelatinous softenings, in others remakable thinness and transparency of them, and in some few cases even ulcerative inflammation, especially towards the caput coli. It is, however, admitted, that the seat of the irritation is sometimes located in other organs. ANDRAL agrees, on the whole, with the author, in placing the seat of the disease in the alimentary canal; but Laennec found the most common morbid alteration which these cases exhibited on dissection, was a deep violet colour, and softening of the heart's texture, whilst RIBES, on the other hand, considers all these fevers to be an inflammation of the inner coat of the abdominal veins.

If adynamic symptoms are to constitute a distinct order of fevers, the author proposes, for the purpose of clearly perceiving the character of these complications, to divide them into three varieties. 1st. All such as arise in the course or decline of an inflammation of any part, other than the alimentary canal, as the lungs, peritoneum, uterus, heart, &c. and which do not present the appearances indicative of a gastro-enteritis. 2d. This variety presents signs of an intense gastro-enteritis, from the very commencement, attended with vomitings, diarrhœa, fetid dejections, &c. These may be considered to be the putrid fever of the ancients, and are now usually known as gastro-adynamic fevers. 3d. This includes such cases as exhibit an adynamic state, without being preceded or accompanied by any unequivocal local irritation. This variety might be referred to idiopathic fevers, if any such existed, disguised by the intensity of the adynamic symptoms, or the mitigation of the local irritations. It is these fevers which constitute not one case in a hundred of adynamic fevers, which has given some support to the tonic plan of treatment, and caused it to be perniciously extended to all the others. If the nature of the causes and symptoms leave any doubt respecting their local inflammatory origin, pathological anatomy would place the matter beyond controversy; but we have no space for a detail of facts of this description, and which moreover abound in the numerous works that have of late appeared on this most important department of medical science.

Treatment.—There are no diseases that have for ages been treated on more erroneous and fatal principles than adynamic fevers. To Broussais belongs the glory of having reformed their treatment. Before he taught physicians better, the approved mode of treatment was to commence with evacuants, as vomits and purges, to be followed up by a round of stimulant and tonic remedies, and the consequence was that a goodly proportion of these cases terminated fatally. The substitution of the antiphlogistic treatment has led to the most beneficial results. The use of vomits and purges in any stage of the disease, is now thought to be pernicious, and mild tonics to be admissible in those very rare cases, not more frequent than one in three hundred, where the asthenic condition is unmixed with any signs of inflammatory irritation. As these fevers are never primitive, the great point is to prevent their occurrence, by combating the primitive affection, or after their appearance, to regulate the treatment in a great measure with an attention to the seat and intensity of the local irritation. In adynamic gastro-enteritis, as in simple gastro-enteritis, it is better to draw blood from the abdomen by leeching, than to have recourse to general blood-letting, which is usually found to be insufficient to subdue the disease, even in quantities that shall produce alarming debility. When the lungs are the seat of the irritation, bleeding from the arm is the proper mode of depletion. When the head is affected, leeching the temples, or behind the ears, or drawing blood from the feet by way of revulsion, are often of the most decided advantage. When the skin is cool and moist, it should be washed with warm vinegar and water; but when it is hot, the water should be merely tepid, so as to yield no decided sensation. The patient is to observe the most rigid abstinence, to take only the mildest drinks, even plain water, and to have his bowels evacuated only by the occasional use of emollient enemata. Blisters and sinapisms are best fitted to the advanced stages of the disease, after the heat of the skin has abated, and it inclines to be perspirable, and even then sinapisms are the preferable of the two. So simple is the treatment which has not only lessened the number of asthenic fevers, but greatly diminished their mortality!

Ataxic Fever.—This term, as designating a distinct order of fevers. was first employed by Selle, afterwards adopted by Pinel, and has since taken the place in France of the more vague appellatives, nervous and malignant fevers. Selle considered all fevers to be ataxic, which exhibited an irregularity and incongruity in their symptoms, course, and causes of the disease; but Pinel without giving any precise definition of the order, has huddled together the most serious and insignificant symptoms, chiefly of a nervous character, and arrayed them antithetically, as a general picture of this shapeless tribe of fevers. The greater part of these symptoms show a suspension or diminution of the functional activity of the nervous system, especially of the brain, but not a radical debility of these organs, or as some contend, something that is yet different both from a state of adynamia and irritation. Broussais is of opinion that they consist of a violent irritation or inflammation of the brain, arising invariably from a gastro-enteritis. To this it is objected, that in some few cases the digestive canal gives no evidence of being implicated; that in others the brain is evidently the organ primitively affected; and in others again, the lungs, uterus, and indeed violent irritation of any part of the economy is liable to produce the cerebral excitement; though it must be confessed that we are to look to gastro-intestinal affections as much the most frequent origin of the untoward complication. On the whole, therefore, these fevers may be defined to be an encephalitis, sometimes primitive, most frequently secondary, ordinarily excited by a gastro-enteritis, but sometimes supervening in the course of inflammations of the lungs, uterus, peritoneum, &c. Where the brain is primitively affected, it no doubt often happens that the digestive organs become secondarily affected; and, on the other hand, in the course of the progress and violence of the ataxic symptoms, the original irritation is sometimes so completely removed, as to leave no trace after death of having existed. The invasion of these fevers, when they do not assume at once their highest pitch of violence, are announced in some instances by cerebral derangement, as cephalalgy, heaviness of the head, somnolency, morosity, disquieting imaginary alarms, lassitude, syncope, &c.; in others, by signs of lesion of the digestive organs, as exhibited in the precursory symptoms of a gastric or mucous fever: and lastly, by a state of sanguineous plethora and reaction of the circulatory system, with the usual phenomena of inflammatory fever. Connected with the symptoms of inflammatory, gastric, or mucous fever, we sometimes have adynamic symptoms combined with the ataxic complication, as shown by the sordes about the teeth, the black tongue, fœtid sweats, dark alvine evacuations, &c.

The greater part of physicians who have made autopsic examinations of ataxic fevers, have found morbid alterations of the brain, or its membranes, but they have in general viewed such alterations as the effect of the fever. M. Prost appears to have been the first to consider the disease as the result of inflammation of the mucous membrane of the intestines. "I have opened," he says, "more than two hundred persons who have died in the course of ataxic fevers, and have constantly observed inflammation of this membrane." However, the author contends that the abdominal, or other inflammation, which has been the origin of the disease, is most commonly combined with some organic lesion of the brain or its membranes. In some few cases no traces of cerebral alteration could be detected, or even any organic lesion whatever; though this last condition is extremely rare, more so than the same state after adynamic fevers. Finally, on comparing his extensive investigations with the labours of his predecessors, it was found that the frequency of morbid alterations in the different organs might be set down in the following order:—1st. The greatest number of cases presented traces of meningeal or cerebral inflammation. 2d. Most ordinarily this condition was accompanied with inflammatory lesions of the digestive canal. 3d. Next in frequency was lesion of the digestive tube, without any other appreciable alteration in the system. 4th. Less frequently still were traces of inflammation of other organs, which had sympathetically irritated the cerebral system, but may or may not have left any perceptible evidence of such irritation. 5th. More rare still were cerebral lesions without other alteration of structure; and lastly, and the most unfrequent of all, were cases in which no sign of morbid alteration could any where be discovered.

Treatment.—M. Broussais, in fixing the attention on the condition of the gastro-intestinal membrane in these fevers, has here also wrought a most important reform in their treatment, and diminished their mortality. He has succeeded in making physicians sensible of the ill effects of stimulants, and tonics of all sorts, on the already irritated membrane, and especially of the impropriety of giving emetics and cathartics, which infallibly add to the disease, if the digestive tube be implicated, as it almost invariably is, even where the brain is primarily affected, so that the treatment is now reduced to means so few and simple, that one is tempted to believe that they must be insufficient to cope with such a train of formidable symptoms as these fevers frequently present. The principles of the treatment can be summed up in a few words. They consist in removing and avoiding all hurtful causes, in abstracting blood from the neighbourhood of the organ more particularly irritated, and conjoining the use of mild revulsive means. Where the brain is the chief seat of the irritation, the blood should be drawn from the temporal artery, jugular vein, or by leeches to the temples, and afterwards revulsion attempted, by drawing blood from the feet, and immersing them in mustard water, or covering them with sinapisms. At the same time iced applications should be applied to the head, and only the mildest drinks allowed, either tepid or cool. Where a gastro-enteritis is the most prominent affection, the detraction of blood should be from the epigastrium, under the border of the ribs on the right side if bilious symptoms be present, and along the course of the colon, or around the anus, if the patient be troubled with diarrhœa. The fomentations to the abdomen may be either warm or refrigerant, but blisters are objected to in every variety of the disease as too irritating and exciting. In such cases as show a combined intensity of the cerebral and abdominal organs, it is preferable, in the first instance, to take the blood from the neighbourhood of the head, as the more important organ of the two, and afterward to leech over the abdominal organ, in case its irritation should not have given way with the subsidence of the disease of the head. Where these fevers are complicated with inflammatory fever, especially if the patient exhibit marks of a full, plethoric, sanguineous habit, the blood-letting must be carried to a considerable extent to be successful; but where they complicate mucous fevers, and run on a tedious course under the appellation of slow nervous fevers, the treatment is truly puzzling, and, whatever mode be adopted, is most usually unavailing. Notwithstanding the alarming character of the symptoms, the author would still abstain from the use of stimulants and tonics, which have not heretofore been attended with the desired benefits, and content himself with giving mild, nutritious food, provided the state of the digestive organs admitted of it; but he would depend chiefly upon moderate revulsion to the external parts, by means of flying sinapisms, taking care not to carry them to the extent of producing pain. Even in these cases, where a decided irritation seems to be kept up in some organ, it would be advantageous to make a small local detraction of blood.

Typhus.—Hippocrates and his commentators used this term to denote a state of stupor in fevers. Sauvages, and after him Cullen, extended its signification to embrace all malignant and nervous fevers, and indeed every fever of a certain degree of gravity. Since their time, however, Hildenbrand, Pinel, and most of the late writers on typhus have restricted its application to what they believed to be a specific form of epidemical fever, arising from peculiar causes, and usually denominated hospital, camp, prison fever, &c. Our author does not consider this fever as forming a distinct order, but only a variety of fever, with the symptoms of inflammatory, mucous, gastric, adynamic, or ataxic fevers, variously combined. The two latter complications, he thinks, invariably exist, especially the cerebral symptoms, which constitute a prominent characteristic of the disease in some part of its course. Its peculiar train of symptoms arises either from a gastro-enteritis, which has propagated its irritation to the liver, brain, or heart; or else from a primitive encephalitis, which may remain simple, or become complicated with a gastro-enteritis, hepatitis, inflammation of the skin, &c. Hence it follows that typhus is in some instances an encephalitis, simple, or complicated with other inflammation; in others a gastro-cephalitis, and in others again an entero-cephalitis, pneumo-cephalitis, &c.

Autopsic examinations have shown that these fevers most commonly leave traces of inflammations in the brain, or its membranes; very often in the stomach and intestines; sometimes in the lungs and brain alone, and not unfrequently in all these organs at the same time.

What has been advanced in the two preceding chapters, to show that neither adynamic nor ataxic fevers arise from an asthenic state of the system, applies equally to typhoid fevers, and need not be here repeated.

M. Broussais agrees with Hildenbrand in denying the existence of sporadic typhus. He believes that the disease depends invariably on an impression made upon the system by a miasm, produced by the decomposition of organized bodies, or from what is exhaled from the body of a person who has taken the disease in this way. These miasms are really poisons to the system, as much so as putrid fish, or poisonous mushrooms, affecting the system for the most part through the medium of the pulmonary and digestive organs, and producing effects according to their intensity. Sometimes they are so intense as to paralyze the vital powers at once, and destroy life in a few minutes, without the supervention of any reaction; in other instances the vital prostration will continue a few hours, or even a day or two before the accession of the febrile reaction; and in others again there is little or no evidence of a state of previous prostration, but the febrile action comes on at once, which Broussais attributes to a phlegmasia of the mucous lining of the lungs, and the gastro-intestinal membrane. These phlegmasiæ, which he denies to possess any specific character different from ordinary inflammations, are extended sympathetically to others, but always to the brain; which however is sometimes affected primitively in this disease, by the operation of moral causes, as nostalgy, and also by the direct effect of heat. Our author thinks that Broussais does not lay sufficient stress on the cerebral affection, for it is this which characterizes typhoid fevers; and besides, that they are more frequently primitive affections than he allows, even in cold countries, from the direct operation of cold on the nervous system, conjoined with the existence of other causes.

Treatment.—The observations made on the treatment of adynamic and ataxic fevers, supersede the necessity of our entering into any details on the present occasion: the same principles of treatment apply to these fevers. Still there is some discrepancy which our present knowledge does not enable us to comprehend, and which calls for further investigation. Why is it, for instance, that these epidemical fevers do not bear blood-letting to the same extent, nor are so evidently benefited by the employment of this means, as adynamic and ataxic fevers, which are sporadic? The peculiar nature of the cause which produces typhoid fevers, and its continued application, will, in our opinion, go far to explain this matter.

Yellow Fever and Plague.—These diseases are treated in the two succeeding chapters, but as neither of them has been the subject of the author's observations, his opinion of their nature and character, although formed from the best sources, must be esteemed in a great measure conjectural, and void of that interest which attaches to actual observation and personal experience. We shall merely abstract a few remarks from this part of the work, in order to show the opinions the author has formed of these diseases. He coincides with Tommasini in considering yellow fever as a high grade of bilious or gastric fever, and with Broussais in attributing its production to high atmospheric heat; which opinion few American physicians would be willing to adopt, knowing as they do, that something more than mere heat is necessary to its production in these latitudes.

Treatment.—Founded on the experience of the insufficiency of general blood-letting in other gastro-intestinal affections, he strongly urges the propriety of making trial early in the disease of the extensive application of leeches to the epigastrium, conjoined with antiphlogistic regimen, acid emollient drinks, warm fomentations to the abdomen, tepid bath, and enemata.

While the stomach and duodenum are the principal seat of yellow fever, the skin and external glandular system seem to be the especial seat of plague, and the frequent occurrence of bubo, carbuncle, and petechiæ to be the most characteristic mark of this form of pestilence. Finally, in summing up what he has to say on these fevers, he seems inclined to place no other difference between adynamic and ataxic fevers, typhus, yellow fever, and plague, than what arises from a difference of intensity, and of seat.

Intermittents.—Pinel rendered a signal service to medicine when he taught physicians not to view the type of intermitting fevers, but to look rather for those characteristic traits which link them with the different continued fevers, and to class them accordingly. Boisseau fully participates in these views. He believes them to arise from irritations of the same local nature and seat, as those which produce continued fevers; differing however in some circumstance that we are not enabled as yet to comprehend. After the example of Pinel he makes the same division of them as of continued fevers. 1st. Inflammatory intermittents have their primitive seat most commonly in the stomach; but they are also produced by inflammation of other organs, as the brain, uterus, lungs, urethra, bladder, &c. These fevers are generally of tertian type, sometimes quotidian. 2d. Gastric intermittents bear the most striking analogy with gastric continued fevers. They are the most usual form of intermittent, are of tertian or quotidian type, and yield less readily to treatment than the preceding. 3d. Mucous intermittents are most prevalent in low humid countries, and in autumn. They are commonly of quotidian or quartan type, and are apt to become chronic in their course. 4th. Adynamic intermittents are extremely rare, but Bayle and others have given well-attested examples of them. They may be of all types, and usually exhibit an imperfect apyrexia. 5th. Ataxic intermittents are more common than the preceding, and will be treated apart under the head of malignant intermittents. Authors speak of typhus, yellow fever, and pestilential intermittents, but their consideration need not detain us on the present occasion. To have their existence proved would not probably throw any additional light on the nature of febrile diseases. After noticing the theory of Reil, of the daily oscillations of the animal economy, and especially its tendency to observe a tertian type, by which he would explain the occurrence of periodical diseases, and the marked disposition which continued fevers so often exhibit of terminating on odd days; the author passes on to the hypothesis of M. Roche, which he rather inclines to adopt, and which seems, indeed, to be generally admitted by the physiological school. This hypothesis attributes the intermittence of fevers to the intermitting character of their causes, and that law of the economy which impels it to repeat its oft repeated actions from mere habit. This doctrine never appeared to us even plausible; for what physician has not witnessed the supervention of an intermittent from one day's exposure to wet, from lodging one night in a marshy district, and from the instant irritation of an organ, as the urethra, &c.?

Treatment.—In the treatment of regular or benign intermittents. the author reiterates the general precepts he had given for the management of continued fevers. He insists on the superior efficacy of leeching the abdomen, where there are signs of inflammatory irritation of the digestive tube; cautions against the abuse of emetics, cathartics, and diffusible stimuli; and enjoins the necessity of withholding quinine and other tonics, in such cases as exhibit morbid excitement during the apyrexial period, especially if the stomach be the seat of the derangement, but rather to put the patient upon rigid diet and diluents, and to employ depletion if the gravity of the disease calls for it.

Malignant Intermittents.—These differ from ordinary intermittents in the greater intensity of the symptoms of the local affection, conjoined with serious cerebral complication. Their numerous varieties, and their delineation the author has chiefly drawn from the learned work of Alibert; of which particulars we shall omit any further notice in this place, as they have no special bearing on the general theory of fevers, except that they corroborate the physiological doctrine, that all intermittents arise from irritations of the same nature as those of continued fevers, differing only in intensity.

Treatment.—In the treatment of these alarming cases he has not ventured out of the beaten track, but hastens the administration of the bark, and in unusually large quantities during the apyrexia, under almost all circumstances. There is reason to believe that the alarm which these fevers usually create, has in a good degree influenced their treatment, and that as their nature shall become better understood, tonics will be considered as less imperiously called for.

Masked Intermittents.—These are various local affections, as cephalalgy, ophthalmy, rheumatism, &c. which recur periodically, but without the supervention of febrile phenomena, and are controlled by the exhibition of bark in the intervals. Casimir Medicus has made, from preceding writers, a very ample collection of these anomalous affections.

Remittents.—The author draws an argument from the character of these fevers, partaking both of intermittents and of continued fevers, of the similarity of the nature of all of them, and of the very secondary importance of febrile type, seeing they are so prone to change and be converted from one form into that of another. Remittents, however, although exhibiting the recurrence of febrile accessions with symptoms of a cold stage, are to be considered as more allied to continued fevers than intermittents, and to be treated on that principle. The bark can seldom, if ever be advantageously given in them, except in those malignant forms, where the gastric organ is not seriously implicated.

Chronic Fevers.—These are either continued or intermitting. The former, the hectic fever of authors, is too well known to require a detailed description. In stating his views of these fevers, the author renders due credit to Broussais, who was the first to develope their true source and character, and of other obscure febrile derangements, by tracing them to chronic inflammations, and showing that the proper method of treatment consisted, not in giving stimulants and tonics to support the sinking powers of life, but in endeavouring to calm and subdue the irritation by emollients, diluents, antiphlogistics, and local depletion, if the state of the system would admit of it. As a general rule in the treatment of these chronic affections, it may be observed, that wherever the irritation is sufficiently intense to influence the heart and implicate the stomach, tonics and stimulants should be sedulously avoided. Where these fevers are intermitting, the stomach is the seat of the irritation; and this irritation, if the disease continues any time, eventually involves the liver or spleen, or both, giving rise to what is usually called obstructions. Such cases are very apt to assume a continued type, and thus render the administration of bark and other tonics improper.

Not among the least of the services which Broussais has rendered medicine, is his investigations into the nature of hectic fever. He has proved to us, that the diarrhœa in these debilitating fevers is produced by an inflammation of the mucous lining of the intestines, and requires mucilaginous preparations, and abstemious diet, not stimulants, to controul it. He has distinguished these fevers into such as arise from pain, and such as arise from the absorption of pus, and on this distinction founded their treatment; but Boisseau considers the distinction as quite immaterial, and of no practical utility. We think, however, that clinical observation will be found to confirm Broussais's views, and if he has not taught us to cure these fevers, all must acknowledge that he has taught us to avoid those stimulant remedies which only aggravate the excited state, and to adopt such soothing, calming means as are calculated to allay the febrile distress, and to render more comfortable the latter days of the patient.

Having thus treated of the febrile affections, which have heretofore been considered as idiopathic, Boisseau concludes his work by some general observations on fevers. He shows what signification the physiological medicine attaches to the denominations simple or complicated, primary or secondary, when applied to fevers, and what relation these fevers bear to those already treated. By *simple fever* is generally understood a fever free from the complication of any local inflammation, or of any other febrile affection whatever; but the physiological school employ this term to designate any primitive irritation of an organ which is sufficiently intense to extend its influence to the heart and arteries. *Complicated fevers* are such as offer combinations of inflammatory, bilious, adynamic, and other symptoms, thereby showing an affection of more organs than one, which contribute to the sympathetic actions. Fevers have only been deemed *idiopathic* or *essential*, because physicians have failed to trace their symptoms to their local origin, and afterwards to verify the existence of the local lesion by dissection. Whenever, on the contrary, the irritation of one or more organs was so manifest, that their existence could not be overlooked, the fever was esteemed *symptomatic*, and of a character altogether different from the preceding. While primitive fevers arise sympathetically from a primitive irritation, *secondary fevers* are induced by a local affection which has been caused by the irritation of a part previously affected. The conclusions to be drawn from these views, are, that these fevers are never general idiopathic affections; neither are they all gastro-enteritic affections; and the important object in their investigation and treatment, whether they be simple or complicated, primitive or secondary, is to trace out not only the organs irritated, but which are the most so, or on which derangement that of the others depends. Finally, from all that has preceded, what general idea are we to form of fevers considered abstractedly? Are they different in their nature from ordinary inflammations, or do they differ only from acknowledged phlegmasiæ in the intensity of the irritation? These are questions which can only be definitively settled, by applying to the various morbid phenomena of fevers, the scrutiny of the physiological principles, and at the same time calling in the all-important aid of pathological anatomy.

If we have been successful in our endeavours to give a faithful abstract of the important and peculiar doctrines of the Pyretology, we have rendered our readers a better service than to have presented them with a critical examination of its novel views, or an attempt to set forth its defects: for if acrimony of remark, strong objections, and insuperable dislike, could have confuted the physiological doctrines, they would long ago have been demolished. Yet they still remain unimpaired, and are, notwithstanding, rapidly extending their influence into every country where the medical art is not sunk into utter ignorance. As a collection of doctrines, they do not seem to us to be susceptible of being judged of theoretically and abstractedly: they must be tested in detail by clinical observation and autopsic researches, the basis on which they profess to be founded. With the few incidental observations which we have made in the course of the analysis, we shall therefore dismiss these doctrines, and in concluding, content ourselves with a remark or two on the manner and spirit in which the work before us has been executed.

Boisseau has evidently written in a spirit of conciliation. There is, from beginning to end, a constant endeavour to reconcile discordant opinions, and to create, as it were, a sort of neutral ground, on which all parties may stand agreed. This attribute is no doubt favourable to its present popularity, and may perhaps have contributed to make it more read, and more highly esteemed than any of the numerous works which have come from the disciples of the new school; but it is also calculated to impair its permanent character; for as these doctrines become more generally disseminated and adopted, a more decided and positive exposition of them will be called for. But what we consider a greater blemish, and which, for the author's sake, we could wish might be corrected, is an attempt on several occasions to underrate the value of Broussais's services to medicine. We do not ask for a servile acquiescence in all he may have written; but it seems to us to be an unbecoming task, to hunt after the fragments of doctrines and opinions, which have never exerted any vital influence on the science, for the purpose of attributing to others what Broussais alone has expounded, and rendered practically useful. Boisseau, we think, in this, has mistaken his true interest. He may rest assured, that his own talents, which are of no ordinary stamp, will secure to him an honourable distinction among his brethren in aiding to build up and to perfect the new medical edifice; and that his own reputation will be best consulted by rendering due credit in this great work to the *father of modern medicine.* C. D.

Art. XVIII. *An Essay on the Remittent and Intermittent Diseases, including, generically Marsh Fever and Neuralgia. Comprising, under the former, various Anomalies, Obscurities, and Consequences, and, under a new Systematic view of the latter, treating of Tic Douloureux, Sciatica, Head-ache, Ophthalmia, Tooth-ache, Palsy, and many other Modes and Consequences of this Generic Disease.* By John Macculloch, M. D. F. R. S. &c. &c. Philadelphia, 1830, pp. 474, 8vo.

This is certainly in many respects a very remarkable work. Our reasons for saying so will sufficiently appear in the account which we propose to give of it. It is the production of a man of a good deal of talent, and of considerable observation, and is, unquestionably, the result of long-continued thought. The opinions which it exhibits have not been formed carelessly, nor are they thrown out at random. Yet we do not recollect to have met with any medical publication which requires so much caution in its examination. We hardly know any writer upon practical medicine, whose statements of doctrine and of practice demand so much qualification and allowance before they can be received as true.

It is not our purpose, nor would it be possible, within any reasonable compass, to give an analysis of the whole of this book. Our object is, so far as we understand them, to present to our readers those views of the nature, causes, relations, and treatment of diseases, which we believe to be peculiar to Dr. Macculloch. Now, in treating of subjects so constantly before the profession as those embraced in this work, a great quantity of matter will inevitably be introduced in the way of description and illustration, which is already familiar to the reader. Much of this, though properly introduced into a complete treatise, is not by any means necessary to the perfect comprehension of those peculiar doctrines which the author labours to enforce. We say this by way of apology for omitting to notice many of the chapters of the book, which are in themselves as valuable as those which are considered more particularly. It is very probable, in our examination, that we may fall into some errors, and may misapprehend the author on many points. But, if it so happen, we are constrained to say, the fault will be as much his as our own. Nothing can be more unfortunate than Dr. M. in his whole style. Not only is he prolix and prosing to excess, but such is the structure of his sentences, and the arrangement of his ideas, that it is no light task to make one's way through the former, or find out the connexion of the latter.

In a former work, Dr. Macculloch has explained his views of malaria as a cause of disease. That work is of course closely connected with this; and, in fact, the author considers this as but the second part or completion of that. It would be desirable, therefore, to give some account of his opinions on so important a point, by way of preface to our examination of the essay before us. But this also would lead over too wide a field; and it is not essential to the comprehension of those peculiarities in doctrine and practice of which we wish to give an account. It will be well, however, to quote a short passage, which will serve to convey some notion of the importance which he attaches to malaria as a cause of disease.

> "I have already said that the disorders produced by malaria include more than half of the total number prevailing at any moment throughout the world; as the deaths caused by the poison amount to half the mortality, or more of the earth; since writers, far less liable to suspicion than I probably now am, have stated it as far exceeding two-thirds." p. 231.

Dr. M. treats at great length of remittent and intermittent fever, and his manner of considering them is in some measure peculiar to himself. The same may be said of his incidental remarks upon other diseases, and on neuralgia. But as it is not so much his general account of these diseases, which we have intended to notice, as his particular views on certain points of pathology and practice in relation to them, it will be well to state at once what these points are, and what particular views he has endeavoured to establish.

1. He has endeavoured to establish the identity between intermittent and remittent fevers and neuralgia, in their cause, their nature, and their treatment. In other words, he has undertaken to show that the different affections which he classes together as neuralgiæ, are produced by the same general cause with intermittents, viz. malaria, (though he admits that there are occasional exceptions to this statement,) that they are exhibitions or developments of the same morbid disposition of the system; the same pathological state which in one patient produces intermittent or remittent, producing in another neuralgia, and vice versa, and that this state may be remedied by the same means, whether it exhibit itself as an intermittent or a neuralgia. This may be regarded as his principal purpose. The others which we are to mention are subordinate to and grow out of this.

2. He has endeavoured to show that certain states of the general health, of an obscure and chronic nature, and certain cases of common disease, which are usually supposed to have a distinct origin and an independent character, are actually concealed or masked intermittents or remittents, often arise from neglected cases of these diseases, and are to be cured by a similar course of treatment.

3. He has endeavoured to prove in a similar manner, (after having first shown that the neuralgiæ are identical with intermittents,) that many painful affections, not generally suspected to be of such a nature, and some affections, not exactly painful, are actually neuralgiæ, and to be so treated.

4. Another object was to illustrate the bad effects upon health in general, and more particularly on the diseases of which he speaks, of certain modes of practice and rules of diet, very much in vogue among physicians at the present day. We mean the reducing system by bleeding, purging, &c. and the antiphlogistic regimen, which forbids wines and spirits, and confines the sick to vegetable, unstimulating food.

5. The last purpose of our author, and one which he seems to have had much at heart, seems to have been to expose the bad logic, the inconsequential reasoning, and the lamentable perversion and insufficient observation of facts, of which all preceding medical writers have been guilty. He labours to prove that the low state of medical science, and the evils which attend it, have resulted from the want of that exact method, in experiment, observation, and reasoning, which has proved of such signal advantage in physical science.

Now we do not mean to say that our author had these five definite purposes in his mind during the composition of his work. He might perhaps be disposed to deny the justice of some parts of our statement altogether. Yet we venture to say, that any individual who candidly reads the book, will allow that we have attributed to him no intentions, no purposes, which he does not either distinctly admit, or which are not clearly exhibited in the general spirit which pervades what he has written. In our examination, however, it will be impossible to arrange the proofs in support of these several positions, in the exact order in which we have stated them, because Dr. Macculloch has not himself so arranged his work. This previous statement of them will contribute much to the right understanding of an analysis of his facts and reasonings in their support; but in prosecuting this analysis, it will be necessary to follow the order which he has adopted in his essay.

In the first chapter the remittent fever is described. Of its contents we have only to state the opinion advanced in it, that contagion and malaria are the only causes of fevers of any moment, and that the other causes to which its production has been ascribed are either imaginary or of little importance. This opinion was previously stated and defended at length in the author's essay on malaria.

The next chapter is "On the Chronic or Relapsing and Obscure or Anomalous Remittent." Under this head Dr. Macculloch describes in the first place an affection of the general health, not uncommon, usually known by the names of "nervous fever," "low fever," "fever on the spirits," "fever on the nerves," which, "with unpardonable carelessness, as it appears to me, systematic writers, and CULLEN, among others, have often, perhaps always, confounded with contagious fever, under the name of typhus mitior." The distinction which he believes to exist between the cases to which he refers, and the "slender" cases of typhus or contagious fever, consists in the durability, the long-continued character of the former. Mild cases of *contagious* fever are short as well as slight. Mild cases of fever from *malaria*, on the contrary, are durable. He believes that all long-continued or often-relapsing fevers belong to this class.

"And if the fever in question can sometimes be clearly traced to that cause, (viz. malaria,) its whole character, when carefully studied, is that of remittent fever in its pure and acknowledged form, and in its severer modes. Its duration, and its tendency to critical periods, are the same, and it is rarely, if ever, without a diurnal remission, which nothing but neglect will prevent the physician from tracing, though it often does require a minute attention, on account of the want of contrast between the paroxysm and the intermission, arising from the feebleness or small severity of the symptoms. Further, it often terminates in an intermittent as slender and obscure as the original disease; while it also is not unfrequently followed by the local affections of the nerves, such as periodical head-ache, tooth-ache, intermitting rheumatism, and even marked neuralgia." p. 36.

In further proof that this is a remittent and not a contagious fever, he states that it is apt to recur in frequent relapses for many years, which does not happen with regard to the latter disease, and that it is not unusual for it to be attended by glandular visceral affections.

This disorder is sometimes evinced merely by muscular weakness, without any proper febrile symptom, the appetite even remaining good. In such cases the patient is suspected of pretending sickness, as might happen with regard to a soldier, or, if a person of leisure, of being indolent, vapoury, or hypochondriacal. But even where this symptom alone is present, the course of the disease is said to be such as to indicate a remittent fever. It has regular periods of relapses and of self-cure; a daily paroxysm, during which the patient is at the extreme point of debility; and a remission, during which he is stronger and more capable of exertion.

In many cases, however, there is a variety of other symptoms. The appetite is irregular, but if we may so speak, *regularly irregular;* always good at one part of the day, always bad at another part. The pulse, though not necessarily accelerated, undergoes a change in the period of the paroxysm. There is an affection of the mind, not amounting to delirium, but approaching it. This affection is of course remittent, and the paroxysm being generally in the morning, the patient's mind is most disturbed at that period of the day. Some suicides, and strange, unaccountable crimes are supposed by Dr. M. to have been committed under the influence of the paroxysm, by individuals, who would have shrunk from the same acts at any other time. "Some of the most remarkable suicides have been committed on rising in the morning, and in a certain paroxysm of fever, which many persons, who have felt and checked the inclination, have described as attended with confusion of thought, thirst, a tremor of the hands, and other unequivocal symptoms of fever."

Two states of mind are sometimes exhibited by the patient—one of torpidity and one of excitement—corresponding, in the fertile imagination of Dr. Macculloch, to the cold and the hot fit. In some cases the patient is seized with a drowsiness, continuing for a longer or shorter time, sometimes not more than a minute, but still very manifest, and marking the commencement of the paroxysm.

Beside these symptoms, there is head-ache, lassitude, restlessness, aching of the limbs, &c. &c. But it is in vain to go through with the description of this disease, which affords throughout a most remarkable exemplification of the influence which preconceived opinions have in warping the judgment of even the most acute individuals. The whole of this description consists of but little else on the part of Dr. M. than an attempt to show how the thousand various symptoms of ill health exhibited by habitual invalids, may be accounted for, on the supposition that they are afflicted with remittent fever, of a "slender character," but protracted in duration.

The only actual proof which Dr. Macculloch offers in support of his opinion, is the alleged remission in these affections. Every physician, he asserts, who is not "the slave of terms," will, or ought to observe its periodical attacks, trace a periodical change in the pulse, and be able to discover the commencement of the paroxysm in the altered physiognomy of the patient, a shrinking of the features, a paleness of skin, &c.

Many cases of dyspepsia, as they are commonly called, are regarded as only cases of this disease, mistaken and badly treated. The same is asserted of hysteria, of amenorrhœa, of dysmenorrhœa, and of the various nervous and hypochondriacal affections. In all these cases, that which is the consequence of a remittent fever of an obscure character, is generally magnified into the essential disease, and made the principal object of the treatment, to the great detriment of the patient. But it would be in vain to attempt to follow the author through his whole examination of this subject. We must be contented with quoting the summary which he gives at the conclusion.

> "It is a remittent fever, bearing all the characters of that disease as it is universally known; but in a modified degree, and often so slight, as to require some attention in tracing its form, and even its existence.
>
> "It is apt to become habitual, or to recur at frequent but variable intervals, during an indefinite course of years, so as even in some instances to occupy almost a long life. In such a course, it also varies its characters and symptoms, and in some cases becomes a masked chronic intermittent; while in others, the imperfection or brevity of the intervals may cause it to appear as a continued febrile state.
>
> "Its accessions, when they are to be defined, are as various in duration as those of the ordinary severe remittent.
>
> "It is the sequel, in some cases, of quotidian intermittent, or of double tertian; and if a mild fever of this nature follows a common tertian, the length of the interval will oblige us to rank it under tertian, as a chronic disease. It is also the sequel of common and acknowledged remittent; and thus it may also be a sequel of what is called typhus fever, because the remittent is often thus misnamed. It is equally a sequel of what is called low fever, or nervous fever, which, equally mistaken for a mild typhus, is a remittent. And these also are the proofs of the real nature and origin of this disease; since it is their continuation, or forms varieties under them. And while its causes must be sought

in malaria, (though others are not absolutely excluded, in our present state of knowledge,) even when it occurs as a primary disease, this also establishes, even further, if that were necessary, its true nature." p. 71.

In treating of the anomalous, obscure, and simulating intermittents, Dr. M. goes through very much the same course of investigations as that which he has adopted with regard to remittents. His object is to prove, that a great variety of diseases, or symptoms of disease, which have usually been regarded as independent affections, produced by the ordinary causes of derangement in the human frame, are in fact the consequences of an obscure or anomalous intermittent fever, and to be cured by the same remedies. He admits that acute cases of this sort have received from physicians a share of attention: but that chronic ones have been almost entirely neglected, to the great injury and mal-treatment of the unfortunate subjects of them.

As intermittent may, at its commencement, assume the appearance of apoplexy, leading both physicians and friends to consider it an attack of this disease alone, the evil of such a mistake, in the opinion of our author, is, that bleeding would be probably resorted to, and that the consequence of the use of this remedy is often to induce palsy, sometimes death, and always to produce additional bad symptoms. A modified form of the same affection is a lethargic or comatose state, which sometimes ushers in the disease, and without careful investigation may also be mistaken for an affection of the brain. The mistake is in this case also of serious import, since the bleeding and cupping, which would be immediately had recourse to, on the supposition of an increased flow of blood to the brain, will lead to palsy, epilepsy, fatuity, idiotism, or at best, to a long train of nervous symptoms.

Paralytic affections make their appearance also as a substitute for, or as a symptom in, both acute and chronic intermittents. Sometimes they usher in the disease, sometimes they occur in the course of it, and sometimes the original disease terminates in them. Dr. M. gives us some striking instances of the truth of his general statement on this point; instances sufficient to support his doctrine of the convertibility of intermittent into palsy and vice versa, but not to authorize all the deductions which he has seen fit to make from them. For his account of them we must refer to the volume itself, pp. 145, 146, 153.

Beside these well-marked affections, a great variety of others may take the place of the intermittent paroxysm. The phenomena of the cold fit may be very brief, only lasting a few minutes, or the sensation of cold may be conferred to a small spot. Sometimes there is no coldness, and the substitute may be a comatose state, or an irritable or nervous state of mind, or a feeling of debility or restlessness, or an insensibility to pleasurable impressions. Or it may consist in thirst, in loss of appetite during a certain period, or in headache, or in an increased secretion of urine, or the patient may be insensible to any ill feeling whatever, in which case there is no guide but the peculiar physiognomy always observable during the paroxysm of intermittent.

The effect of chronic or habitual intermittents is to weaken and destroy the intellectual faculties, and this effect, according to our author, is very much promoted by the vicious modes of treatment so prevalent among physicians. But even mania is sometimes met with of a distinctly intermittent type, having quotidian or tertian paroxysms, as regular and as well-marked as those of the most distinct ague, and capable of being cured by the same remedies.

Vomiting is another affection which may occur regularly as part of the intermittent paroxysm, and may become the most conspicuous symptom, the only one indeed to which the attention of the patient is directed. It in fact constitutes the termination of the paroxysm, and is commonly preceded by a state of drowsiness, or by some other symptoms which the patient may neglect to notice, because they are so slight, and also because they are habitual. This form of the paroxysm may continue some months, and then subside, or be exchanged for some other symptom.

Palpitations of the heart, and other variations in the mode of action of this organ, Dr. M. has detected, as constituting the paroxysm of the chronic intermittent, and being cured by the same remedies. An affection of the same kind is what is usually denominated rheumatism of the heart; and both these affections, though treated of under the head of chronic intermittent, are regarded properly as neuralgia of the heart. Still, as neuralgia is only another form of intermittent, in the view of our author, this misplacement is matter of little moment.

Many other affections are enumerated as being related in the same manner to intermittent fever, and produced in the same way by its cause, malaria. Among these are some cases of rheumatism; some forms of diarrhœa; a kind of cough, commonly called spasmodic or nervous; the catarrhus œstivus, the hay fever of the English, or, as more frequently denominated among ourselves, the rose cold; certain cases of cough, accompanied by emaciation, which have been mistaken for phthisis; and an intermitting or periodical variety of strangury.

Having thus stated the opinions of Dr. Macculloch, as we believe, with perfect fairness, it remains to inquire by what method of proof he establishes, to his own satisfaction, the identity of these various affections with the intermittent fever. All practitioners, we suppose, would admit, that intermittent fever leaves the constitution of many individuals very open to attacks of other disorders, and that those disorders are, in such subjects, liable to present something of the intermittent form—that various diseases may arise in the course of intermittents, taking their place entirely, or alternating with them—and that these diseases may be removed by the same remedies as those which remove intermittent fever. In short, they would admit that cases may occur, and probably have occurred, of all the various anomalies of which he treats. But it must require a large amount of credulity, or a most unqualified reliance on mere authority, to be willing to receive all the conclusions at which Dr. M. has arrived, on such kind of evidence as has satisfied him.

The state of the case is, we suspect, very nearly this. The author admits, on several occasions, that his sphere of observation in general practice has been somewhat limited; while he has had opportunity of witnessing, very extensively perhaps, the effects of malaria in the production of disease, intermittent and remittent, acute, chronic, and relapsing; and also the influence which these diseases exert on the general health. At the same time he entertains views of the nature of medical reasoning, somewhat at variance with those of most physicians, and is disposed to adopt a principle similar to that recognised in the exact sciences, which regards a single fact, perfectly well proved, to be sufficient for the establishment of a general law. These circumstances have led him to attach undue importance to the striking individual cases which he has met with, and to generalize somewhat hastily from them, with regard to a large amount of other cases, bearing to them a certain degree of resemblance, but in which he is able to find an exact similarity.

Now what are the circumstances which our author regards as sufficient to establish the identity between these affections and intermittent or remittent fever? Chiefly these—viz. their liability to regular remissions—their occasional alternation with true intermittent or remittent fever—their cure by the same remedies, and production by the same causes.

With regard to remission as a characteristic of disease, there is hardly any disease, or state of health, in which, by a careful scrutiny, one may not discover something like it. In many of the cases considered by Dr. Macculloch, he admits, that it is very difficult to get at the fact of the remission, that patients are not aware of it, that physicians do not even stumble upon it after months attendance, that it is only to be ascertained by a rigorous cross examination. We venture to say, that there are few patients, who, if schooled by Dr. Macculloch on this point, would not soon have, or fancy that they have, a daily remission of their symptoms, since a very strong influence operating upon the mind will often cause or controul phenomena of disease. Beside this possible, and even probable effect upon the imagination, it is matter of fact, that most diseases are subject to remissions, and that these are often peculiarly regular. Remission may be indeed regarded as, in some measure, a law of the phenomena of the animal economy. Even in health there is a change in the mode in which the several functions are performed, and in the symptoms by which their performance is indicated, at different periods of the day. In acute diseases one can hardly bring to mind cases which do not exhibit remissions and exacerbations, slight perhaps in degree, but still perfectly distinct. In chronic complaints the same general law is found equally true. Let the disease be what it will, accompanied by a proper symptomatic fever or not, we may almost always detect, on examination, that the patient is generally better at a particular period of the twenty-four hours. There is a diminished intensity of his symptoms, if nothing else, at that particular time. He is better in the morning, or better in the afternoon or evening. There is some one meal, perhaps, for which he has a relish, although he has none for any of the others, or perhaps he can take food later in the evening or night than any of the regular meals. At all events, in some way or degree this disposition to remission is manifested in a large proportion of cases. How can it therefore be fairly taken as a proof, that a disease has in it any thing of the peculiar intermittent character?

Then, as to the occasional alternation of these various affections with proper remittent or intermittent fever, we cannot consider it as any proof of the identity of the diseases, except in those particular cases in which it occurs. That a head-ache, or neuralgia, or paralysis, or hysterical affection, alternates with intermittent fever, and is cured by the same remedies, is no doubt sufficient to render it highly probable, that in the individual case the complaint is one and the same. But it is in no degree sufficient to show that any other case of head-ache, neuralgia, &c. is identical with intermittent, even should one be able to detect that the patient has a sensible remission of some one or more of his symptoms at a particular hour of the day, or, where no symptom remits, that he has at that hour the peculiar physiognomy of the intermittent paroxysm.

As to the cure of these affections by the same course of treatment, one can hardly regard it as seriously offered by way of proof, and yet our author frequently refers to it as if he viewed it as such. We do not see why this should be considered a proof that a complaint had its origin in intermittent, any more than the removal of disease by mercury should be considered a proof that it had a syphilitic origin, or of an eruption by the external application of sulphur, that it was the itch.

The production of these affections by the same cause as that which gives origin to intermittents may occasionally happen, and some remarkable instances of this sort are mentioned by Dr. Macculloch. In these cases we are not disposed to doubt the identity of the diseases, particularly as they have sometimes passed into, or alternated with, each other. But the existence of this fact gives no sanction, in our view of the case, to a theory which includes affections so heterogeneous in character, and in such immense numbers, under one common denomination.

The peculiar state of the general health, which has been described by Dr. M. as a form of chronic and relapsing remittent fever, and which, as he states, is commonly known by the names of low fever, fever on the spirits, &c. is probably pretty familiar to all practitioners. So also most of the other affections which he has taken such pains to show to be identical with intermittent fever, will be easily recognised. They are common to all situations, both those infested by malaria and subjected to intermittents, and those which are free from it. The same may be said of neuralgia. It may be found under all circumstances of exposure, and is the offspring of those common causes of disease which operate upon our species in every climate and region.* We are writing in a part of our country where intermittent fever, so far as we have been able to learn, has never been known to originate, within the memory of man. Yet we have no lack of cases of disease exhibiting complete and palpable remissions; none of neuralgia in all classes of society; none of hemicrania, or, in short, of any of those multifarious forms of disease which Dr. Macculloch has enumerated as among the consequences of malaria, and as being in fact disguised or anomalous intermittents.

If there be this close connexion between the diseases in question and intermittents, so that in truth we are only to consider them as intermittents in disguise, it is somewhat remarkable that among us they should always keep themselves in the dark; that they should never throw off the mask and show themselves in their true character. If in districts where intermittents prevail, they so often become disguised, irregular, and obscure, it is strange that where the disguised, irregular, and obscure form is so prevalent, it should never come out and exhibit its genuine features. This view of the case is fully sufficient to show, that so far as a particular district of country, not subject to intermittents, is concerned, there is no reason to attribute the cases of disease in question to the same external causes, or to the same morbid state with intermittents. Now, if in this district these cases are as frequent as in a district where intermittents do originate, we argue that there is no ground for believing them to be generally the consequences of intermittents, or identical with them. If the general causes of disease are adequate to their production among us, why are they not adequate in all cases, and under all circumstances. The individual cases which have produced so great an influence on the mind of Dr. Macculloch, will not maintain his theory against this general fact. We have full faith in the correctness of his inference with respect to these particular cases, but cannot admit the general deduction which he is disposed to draw from them.

The remarks which have been made on this peculiar feature in the theoretical views of our author, apply equally to the doctrines which he inculcates concerning neuralgia. As has been implied, in what has been already said, he entertains the opinion, that neuralgia in all its forms is but intermittent in a different shape, and that it is to be cured by the same remedies. In this belief we cannot join him. But although differing on this point, we cheerfully admit the great value of that part of his work which relates to neuralgia. Always disposed to carry his views to extremes, there is still remaining, after all allowances, a large fund of useful practical information, both with regard to the history and treatment of the singular and obscure affections classed under this title.

Dr. Macculloch first speaks of neuralgia of the face, or tic douloureux. His belief is, that this disorder is not, as has been often supposed, of recent origin, but that no account of it has been preserved in a distinct form from the very imperfect views of its pathology which have prevailed. Cases of it, when they have occurred, have been classed under various denominations. They have been called rheumatism of the face—disease of the antrum maxillare—periodical head-ache—clavus hystericus—tooth-ache—and gout. The introduction of a definite term, tic douloureux, although an objectionable one in itself, has been of much use in concentrating the observation of physicians on instances of this disease, and leading them to consider these instances in a more general and connected manner.

The symptoms of a paroxysm of this neuralgia are described much in the same way as by other authors. The author dwells particularly, however, on the intermittent character which it presents, and asserts positively the existence of a regular cold stage, either indicated by something like a chilly fit, or when less distinct, by some change of countenance resembling that which is observed in the commencement of an intermittent. To this chilly fit succeeds the pain which corresponds to the hot fit, and is sometimes marked by an increase of local heat, and sometimes swelling and redness, and by thirst. The sweating stage is rarely well marked, and is discovered only by the facility with which a perspiration is produced by exertion.

It is acute and chronic. The paroxysms in the acute are regular and distinct, occupying a certain time, from a number of hours to but a few minutes, and leaving an interval of health. The paroxysms are generally quotidian. Tertian and quartan periods occur, but when they do, their return is not so regular. The chronic cases are less regular. Indeed, we do not see that the author succeeds in establishing any thing like an approach to regularity in the return of the paroxysm, and he in fact alludes to but a single case, recorded by SAUVAGES, in which the paroxysms recurred once in eight days, and continued at this interval for three years and a half. We infer from his admissions on this point, that there is nothing in the chronic neuralgiæ of the face, which include nearly all cases of what is properly called tic douloureux, like regularity in the return of the paroxysm. Still he clings to the theory in spite of the fact, and attributes the want of evidence of this part of it to defective observation, or obstinate self-delusion on the part of others, and limited experience in himself.

In the next chapter, Dr. M. attempts to establish the identity of the common periodical or intermittent head-ache, or hemicrania, with neuralgia and with intermittents. To intermittents it has undoubtedly very strong points of resemblance, in the almost complete regularity of the return of its paroxysms, and the readiness with which it yields to the same remedies. We have looked in vain, however, for those symptoms of resemblance in the character of the paroxysm which are represented as being so distinct. We have inquired carefully, and that too since reading this work, for the cold fit, and for the sweating stage indicated by the increased disposition to perspiration, but have inquired to no purpose. Patients do not discover in their countenances even that peculiar physiognomy of the intermittent paroxysm which is so obvious to Dr. Macculloch. The whole of this chapter, containing too, as it does, much that is practically useful, affords a remarkable instance of the great extent to which a writer may be blinded by his theory, to the most obvious facts. Every thing in history of periodical head-ache, indicates its origin from catarrh of the head, or of the head and lungs. It follows almost invariably the ordinary symptoms of a catarrh of greater or less extent; a catarrh too, which may often be traced to the usual causes of that disease. And we submit the question, whether, with a little exception, its symptoms do not resemble those of catarrh as much as they do those of intermittent. The head-ache is intermittent, often perfectly so, but not always. Catarrh is generally at least remittent, sometimes absolutely intermittent. Their cause is identical, whilst that of intermittents is entirely different. It is true, there is no resemblance between the severe pain of the head-ache and the principal inconveniences of catarrh—neither is there any greater, except to eyes armed with the glasses of theory, between this pain and the symptoms which are exhibited by a paroxysm of intermittent. In short, there is no want of evidence for the opinion that periodical head-ache is only a certain way in which the morbid state of the system, produced by catarrh, developes itself; whilst there is very little evidence that it is a way in which the morbid state, produced by intermittents, developes itself.

With regard to the evidence derived from the remedial effect of the same mode of treatment in these diseases, we are persuaded that it ought to have little weight. Many other diseases yield to these remedies; and in particular, many other species of head-ache, which even the ingenuity of Dr. Macculloch could not torture into an identity with intermittents, are essentially benefited or entirely cured, by quinine and arsenic.

In connexion with his description of periodical head-ache, Dr. M. briefly alludes to cases of intermittent vertigo, and one of intermittent deafness which he has noticed, and to cases of intermittent fatuity, which he thinks possible. He also takes occasion to remark, with some severity, upon the modern doctrine of the flow of the blood to the head, and upon the practice which is the result of that doctrine. We shall have occasion to refer to the opinions expressed on these points in the sequel of this article.

He next describes affections in various organs of the body, which are regarded as neuralgiæ, and for the most part with great appearance of probability. These we can do little more than enumerate. He describes neuralgia as affecting the optic nerve; the testicle; the penis; the hand and fingers; the knee; the tibia; the toes; the rectum; the thigh, and the kidney. A few cases only are given, of these several varieties, and they are all related in that morbid spirit of hypothesis which deforms this whole volume; still they are of value as directing the attention of practitioners to certain phenomena of disease which have been generally overlooked.

A separate chapter is devoted to sciatica, on account of its greater frequency, and the attention it has heretofore attracted. That he offers many good reasons for regarding it as a neuralgia, cannot be denied. We would only add, that part of his reasoning on this, as well as on several other occasions, amounts in substance solely to this:—this disease has remissions and paroxysms, therefore it must be neuralgia, and the paroxysms are, or might be regular; and further, this painful affection is a neuralgia, therefore it must come on in regular paroxysms.

That a writer so easily satisfied with evidence, where any exists, or so readily taking it for granted where it does not, should have ever found it necessary to doubt on any point, was not to have been expected; yet he has a chapter entitled "Questionable Neuralgia." Under this title he includes lumbago; the pain of the loins in fever; a pain in the stomach, often attributed to dyspepsia, an affection which was regarded as an inflammation of the spinal nerve, and the pain in the ear called usually otalgia.

The glands are also regarded as being capable of a neuralgic affection. As examples of such an affection are mentioned, the flow of tears and of saliva frequently occurring in neuralgia of the face; a violent flow of water from the nose, known to occur in the same disease; "an increased secretion from the testicles, accompanying a somewhat slight, though periodical affection in the vicinity, which was clearly referrible to neuralgia;" a diabetes taking the place of an intermittent, coming on periodically at the same time, and occupying the same length of time as the intermittent had done, the saccharine quantity even of the urine being confined to the same period; and a salivation following upon, and taking the place of intermittent, being, as our author remarks, "a transference or localization of the intermittent."

Next Dr. Macculloch considers the subject of neuralgia from injury. Of this affection he alludes to several instances, viz. one in the finger from the prick of a needle, one in the arm from a blow upon it; one in the foot from a blow with a sharp-pointed stone; and one in a finger in which a fragment of glass had been buried, so as to leave a small induration. Some of these cases were cured by arsenic, whilst the others had become chronic, and resisted all the treatment which was submitted to. Cases of neuralgia analogous to these arising from injury, arise also from tumours pressing on a nerve, from ulcers, or from any cause exercising a permanent mechanical influence on a nerve. An analogy between tetanus and neuralgia is strongly hinted at; and the author is evidently more than half inclined to regard the common pain of corns, as of the same nature.

A chapter is devoted to tooth-ache, the purpose of which is, as might be supposed, to show the analogy between tooth-ache, neuralgia, and intermittents, and the folly of the common opinion with regard to it. His mode of reasoning may be easily imagined from the examples we have already given of it. Many of his practical remarks evince much sagacity, and are of a good deal of value, on this disease; and though we presume neither physicians nor patients will be quite convinced that it is better to cure tooth-ache by bark, quinine, and arsenic, than by extraction, still many will agree with him that the indiscriminate removal from our jaws of all painful and carious teeth, without attempting their relief in any other way, is both cruel and unnecessary. We fear that much comfort and health too, have been sacrificed to the common prejudice, that, whenever a tooth aches, from whatever cause, it ought to be immediately extracted. The remarks of Dr. Macculloch on this subject, may be read with advantage by all who are in any degree interested in the treatment of diseases of the teeth.

The last of the forms of disease, included by Dr. M. within the all-pervading embrace of his theory, is rheumatism of the eye, or neuralgic ophthalmia. A particular account of the chapter relating to this subject, we must omit, making the same remark we have before, that while there is constantly exhibited the same overweening fondness for theory, and the same perversion of facts in its support, there is still much that is valuable with regard to the history of the disease of which he treats, and many useful suggestions concerning its treatment.

We are sensible that this is but an imperfect view of the contents of the volume of Dr. Macculloch; yet it is as full as the necessary limits of an article would permit, and we are not aware that we have omitted any thing which is important to a right understanding of his peculiar system of theory or of practice. Indeed, as may be inferred from what has been already said, the principle on which he explains the nature of the diseases of which he writes, although applied to a great variety of affections, has in itself very little variety, and is subjected to very little modification. He has a standard to which every thing is referred; to which every thing conforms, or is made to conform.

He enters at large into the treatment of the several cases of which he has written, viz. remittents or intermittents, both regular and irregular and obscure; and the various neuralgia. We shall confine our attention to his remarks on the cure of neuralgia.

His mode of treating neuralgia is fundamentally the same with that which he recommends in intermittents. Of its success he remarks that it has never failed him in any case of recent origin, or moderate duration; that it has even succeeded in numerous instances of very long standing, and in many at the same time, which had been received from other practitioners as incurable diseases; that it has failed only in those inveterately chronic cases, analogous to the simple intermittents of the same character, in which also the same treatment fails; and particularly in those cases accompanied by visceral disease.

The author first remarks with regard to the cure of these affections, "that they often disappear without medicines, and even without apparent remedies of any kind, by a spontaneous action of the constitution; whilst they are also truly cured by circumstances that are not noticed, and to which the credit is not given." This circumstance gives frequent occasion for attributing to some remedy relief which has been actually produced by an effort of nature or something else. The turn of life, as it is vulgarly called, in women, frequently relieves them from neuralgic affections, and also from some of the states of health left by intermittents. The same effect is also produced by a change of air, by strong mental impressions, by a fright, by an influence exerted on the imagination, as in animal magnetism, and by charms. A case is mentioned of tic douloureux, which had resisted remedies in the hands of Dr. Macculloch, but which was cured at once by an old woman to whom he referred it, and who had great reputation for the removal of similar diseases by certain unintelligible charms.

A fit of neuralgia, like a fit of intermittent, may often be prevented by stimulants and narcotics given before the paroxysm, and by thus breaking the habit of recurrence, the disease may be sometimes cured. Intoxication sometimes cures, partly in this way, though principally perhaps by exciting another action, or a temporary artificial disease in the system. The occasional cure of neuralgia by this means, has led to the general use of narcotics in its treatment, and they have been pushed, according to Dr. Macculloch, to a most outrageous and dangerous extent, but have rarely benefited the patient or removed the disease. "They have been recommended and adopted without a correct view, or any view at all, of the theory or nature of this class of diseases; empirical remedies against a symptom, according to the usual mechanical practice of physic; means of quelling pain, without inquiring from what that pain proceeded."

The only proper remedies of neuralgia are the tonics, administered on precisely the same principles as in intermittent fever. The tonics are divided into three classes; vegetable bitters, astringent vegetables, and metallic substances supposed to possess an analogous power. At the head of these three classes respectively, in point of efficacy, are placed the nux vomica, the Peruvian bark or its preparations, and arsenic. These may also be regarded as the representatives of the character of these classes. Bark is represented as the most valuable in intermittent, and arsenic in neuralgia. The latter often acts like a charm on the pain, even in cases of many years duration.

In intermittents, the general mode of administration is, to give the largest quantity which can be taken without offending the stomach or producing disturbance, during the intermission, and to avoid their use during the paroxysm. Some exception to this rule is advised in quotidians, where the interval is very short, but even in such cases the cold stage is to be left free from medicines. In English practice it is most common to give moderate doses of bark, and to persevere in its use without limit; in foreign practice to give as much as can be borne for a few intervals, and then to cease: recommencing the use of it at some distance of time should it fail. It is often true, that where a large dose is inefficacious, a small one is useful; ten or fifteen grains will sometimes produce the effect, which a drachm has failed to do. It is a common opinion, that where the stomach is offended no good is done, but there is some evidence against this; it seems also to be generally true, that the perseverance in the use of the bark beyond a few days is nearly useless. The best form of this remedy is the modern preparation, the sulphate of quinine.

Arsenic is less efficacious than bark in diseases of a highly febrile character, and of long duration, and which approach to the remittent in their form. It possesses no power at all in the very chronic disease, though perhaps not more nugatory than any other remedy. In a new and simple intermittent, particularly a tertian, it is a more rapid and convenient remedy than bark. It is also more effectual in cases where the disease puts on the anomalous symptoms and characters which have been alluded to.

Dr. Macculloch does not regard the common preparation of arsenic, Fowler's solution, as the best form of administering it. He asserts, that where this has failed, it has succeeded in the form of the common arsenic of the shops, given in powder diffused in sugar, in doses of from one-sixteenth to one-eighth or even one-sixth of a grain, three or four times in a day. The common opinion of immediate danger, or of ultimate bad consequences from its use, he does not believe to be well founded. It is to be administered with caution, and intermitted, or its dose diminished, when unpleasant symptoms, such as nausea, head-ache, tremors, griping pains and purging, eruption, and œdema about the face and neck arise. Sometimes patients have persevered in spite of these symptoms, without any ill consequence, and with the expected benefit to their disease.

These remedies, properly administered, our author believes to be almost infallible in the cure of recent and regular cases both of intermittent and neuralgia. But there are two circumstances under which they are very liable, as well as all other remedies, to prove unavailing. The first is when the attacks of the disease are very irregular, and the second when the disorder is of very long standing. These two circumstances, both in intermittent and neuralgia, are very commonly united.

In irregular or ill-marked intermittent, blood-letting, an emetic, purgatives, or a mercurial affection of the system, will sometimes render the disease regular, and the same means may prove effectual in neuralgia, as preliminary to the administration of tonics. But in the inveterately chronic disease, no such summary measures are likely to prove advantageous. The cure must be principally confided to general measures; such as the removal of the patient from the situation in which he has been exposed to the cause of the disease, malaria; the administration of the remedies which have been mentioned, upon every recurrence of the symptoms, with the view of interrupting and breaking up the habit in which the affection partly consists, and adherence to a full and somewhat stimulating diet, including the rational use of wine, with warm clothing, and as little exposure to cold, both locally and generally, as possible.

Of local remedies, we are speaking now of neuralgia only, Dr. Macculloch has little to say in commendation. Camphor, opium, alcohol, ether, &c. are at best only palliatives, and this only in mild cases. Blisters, issues and setons are absolutely injurious, and so also is ice. Electricity and galvanism are positively inert. Warmth and moisture, however, in the form of steam, applied by means of a pipe, or of warm fomentations, he has found actually efficacious in relieving the pain, shortening the paroxysms, and in thus contributing to break up the disease. They tend also to remove the general soreness which accompanies and follows the paroxysm. This effect is also produced by the local application, and even by the internal administration of narcotics.

So much for the *juvantia* in this class of diseases. But this work is not less full on the subject of the *lædentia*, and the author indulges very freely in censures upon certain modes of practice, very prevalent at the present day, which he represents not only as injurious, and even fatal in their consequences, when employed in intermittent and remittent diseases, but also when employed under other circumstances, and in fact under almost all circumstances. The remedies so obnoxious to him are bleeding, both general and local, purging, mercurial medicines, the alterative practice of Mr. ABERNETHY, blistering, and in general those measures which tend to reduce the strength and lessen the quantity of circulating fluids. The regimen to which he is opposed, is as we have before stated, that usually denominated the antiphlogistic; and he is opposed to it, not only when adopted as a means of removing diseases, but also when adopted as a rule of life by those in health; for every one is aware that the mode and habits of life often recommended to those in health as a means of averting disease and prolonging life, are precisely the same in principle with those which constitute the antiphlogistic regimen in disease.

We do not mean that Dr. Macculloch proscribes these remedies in all cases; he admits, if we recollect right, their propriety in certain cases of high inflammatory action, partially in the early stages of remittent fever, and even under certain other rare circumstances in the diseases of which he treats. But it is obvious, that on general considerations he would regard the sphere of their utility as extremely limited, and as generally injurious to the health and constitutions [illegible]

As an example of the charitable construction which he seems always disposed to give to cases in which blood-letting has been employed, we may refer to what he has said of the effects of this remedy in intermittents. All the consequences, immediate and reme which this disease leaves behind it, are attributed to loss of blo whenever the patient has been bled. Thus where apoplexy and pals occur in such a case, the bleeding is always the cause. On pages 146, and 147, he relates certain cases of this kind, as if produced or aggravated by venesection; yet offering no proof whatever, so far as we can see, why a disease which had an independent origin, might not have gone on increasing from the force of the original impression, in spite of, and not in consequence of, the remedies employed. But, in connexion with these cases, so far does he carry his prejudice on this point, that he even conjectures that two recorded cases of universal palsy, following intermittents, were probably produced by the evacuant practice, although, so far as appears, not a syllable is lisped in the record, of the adoption of this mode of treatment.

In all parts of his work, he speaks in the same unqualified manner of the effects of blood-letting, always ready to suppose evil where it does not appear to have followed this remedy; and where evil exists to suppose that this remedy must have preceded, even where there is no intimation that it has. Among the errors connected with the prevalence of this practice, which gives occasion to much remark, is that which attributes many of the affections or symptoms, of which the head is the seat, to an increased circulation through the vessels of the brain, or its membranes, or its parietes; or to an increased quantity of blood in those vessels. We cannot do better, in order either to explain his views, or to illustrate the spirit in which he offers them, than to quote the following passage.

> "If I have thus examined with as much detail as appeared useful, the periodical or intermittent head-ache, there still remains to be noticed, an affection, or a collection out of some of the preceding symptoms, for which I can find no better place. I know not well what to call it, from its half imaginary half mistaken nature; while I should assuredly not have bestowed a paragraph on it, had it not been for the pernicious practice to which it has led, and which, being one among the fashions of the day, seems also to be rapidly increasing. Though it is not a disease, nor even a symptom, nor any thing else that can be defined, consisting as it does in a false and irregular view of many symptoms, what is here meant will be understood, when I repeat the fashionable term by which it is known, namely, 'a flow of blood to the head.'
>
> "I am not under the necessity of inquiring what is meant, physiologically, by the phrase, a flow of blood to the head, while I conjecture that those who use it so readily, would be somewhat troubled to explain their own meaning; nor is it within my compulsory limits to discuss those cases, be they apoplexy, phrenitis, or what they may, in which a derangement of some kind, of the circulation within the brain, does take place. In the cases to which I allude, it has been recently discovered, (for the disorder is of very recent invention,) that the blood flows in some very improper manner to the head, even should the patient be a delicate and young female, a pallid and enfeebled night-watching student, a nervous lady of fashion, exhausted by London vigils, or any one else

of all those who were once esteemed to suffer from debility and nervous diseases; a tribe too numerous to mention in detail. Who was, or who were, the enlightened discoverers of this new philosophy, may be asked by those who can themselves answer it: a physician must hope, for the honour of his profession, that it was the discovery of the cuppers, and that it has been propagated by the self-empirics who are now fast becoming the rivals of his brethren, in the science, and of the apothecaries, in the art.

"It belongs to another subject, and not to mine, to investigate the various disorders, whether of the general system, or of the digestive one, which give rise to those numerous, yet often trifling affections of the head, to which this modern philosophy has been applied; affections formerly esteemed nervous, and, if not exactly explained by the term sympathetic, yet well understood under that received name. That which is here my business, is to say that this kind of derangement, or these symptoms, unquestionably often sufficiently teasing to an irritable constitution, occasionally also in themselves not a little troublesome, but always aggravated in the patient's mind by the species of terror or anxiety to which this false view of their nature gives rise, are very frequently the product of the intermittent affections of the head which I have been describing, or are actually cases, if sometimes obscure ones, of the periodical head-ache; disorders of a neuralgic character."

Now we are not disposed to deny that there is much truth in the remarks which he makes upon this subject. We only maintain that they are too indiscriminate and sweeping.

One more quotation in which he throws together a variety of the bad effects which venesection is capable of producing in remittent fevers. Its evil consequences—

"Are those which conduct to a very protracted case with long-continued debility, injury to the intellect, or affections, general or topical, almost incurable: or else to a fatal termination, marked by the previous sinking of the vital powers, and by all those symptoms, so often attributed in these cases to dangerous or fatal typhus, as they also occur in that kind of fever." p. 93.

With respect to what our author regards as the abuse of purgative medicines, the language he employs is not less decided. He tells us that there is no practical error more common than that which considers sluggish bowels as a primary disorder, or as a consequence of deranged liver, instead of the effect of a febrile state.

"Nor," continues he, "is it difficult to [illegible] as it is common, since it is the conseq[illegible] a disorder nothing [illegible] [illegible], and partly [illegible]at empi[illegible]al practice for which England is so celebrated, and which while it tends to blind the judgment, can, from its facility, be conducted by any one; while I need not tell the medical reader to whom we are indebted for its present influence an[illegible] abuses, an influence and abuses, which, whether they are now increasing or diminishing, are convenient to indolence, by superseding the necessity of thought or investigation, and by reducing the whole practice of physic to an empiricism, to which I know not that its entire history can produce a parallel example." p. 41.

He attributes to injudicious purging as well as to bleeding, many of the evil consequences which attend intermittents; and he also ascribes much of the ill health existing in society, to the modern theory which attributes all derangement to disturbed digestive organs, and the modern practice which cures them all by calomel, blue pill, and salts. The health of families, he asserts, is often sacrificed to the family medicine chest, which has caused the very state of health it is called upon to remove. It is sufficient to the cure of innumerable cases called nervous, simply to abandon the use of purgatives, and to trust to nature; and the incidental abandonment of this practice is one frequent cause of the benefit which patients derive from travelling. "Let any family, or any individual thus educated on purgatives, (provided, indeed, that the health is not utterly ruined,) take but courage enough to destroy the medicine chest, and lock the door against the physician, and they will soon find which was the cause, and which the consequence." p. 221. To this habitual use of purgatives he attributes the prevalence and constant increase of nervous disorders in England.

But fashion, says our author, is not confined to bleeding and purging, there is a similar fashion respecting diet and wine. The theory on which this fashion is founded, teaches "that all persons, at least in the upper classes of society, eat more than is necessary, or more than is salutary; that all cookery, meaning by that, refined cookery, as well as all condiments is pernicious; and to sum up the whole, that a large proportion of the diseases of mankind is the consequence of too full, or too luxurious a diet." p. 228. But according to Dr. M. where there is one case of disease produced by too abundant or luxurious food, there is a thousand by its deficiency; and he asserts the superior beauty, strength of constitution, and length of life of the easy and opulent classes, as a [illegible] his position. He is not less decided in his reprobation of the doctrine which inculcates abstinence from wine, as an article of diet, and maintains that no physician can point out any evil effects from its use, except when carried to that excess which constitutes habitual intemperance.

These theories, and this practice, he is fain to ascribe to a love of tormenting ourselves and others, which he believes to be a predominant principle of action, particularly among doctors, nurses, and patients. "The humane principle, which has determined that whatever we wish for most and like best, is precisely that which is most injurious, and in which we must be controlled: a rule that gains its full and pernicious sway, when it is aided by that inherent principle of tyranny and love of command which enjoy their full scope over the helpless bed of sickness." p. 86. "To restrain, to torment, and to terrify, have been too much the custom of physic and physicians, as they have been that of other sects in mankind, of far higher note, valuable engines of power as they are." p. 231.

Now we do not quote these observations and hold them up as worthy of entire disapprobation. By no means. They are all founded, to a certain degree, on that which is true. But the truth is exaggerated—it is caricatured. Dr. Macculloch has no conception of that middle ground on which the truth is generally to be found. He is always in excess, both in asserting his own opinions, or in attacking those of others. We suspect that few rational men doubt, that the antiphlogistic and depleting practice has been urged to an injurious excess; that purgatives have been abused; that the doctrines of Dr. Hamilton, and more particularly of Mr. Abernethy, have been carried, if not by themselves, certainly by others, to a ridiculous extent. Yet as few probably doubt that these doctrines and modes of practice are mainly those by which an immense majority of the diseases to which we are liable, are to be managed.

And so too of diet. Most of us will admit that an abundant supply of nutritious, and somewhat stimulating food, well cooked, is conducive to health, strength, and long life; that to the improvement of modern society, in this particular among others, is to be attributed the improved health and increased chance of life in modern times. But we must protest, on the one hand, against the extravagance of Dr. Macculloch, who sees little danger from excess, either in eating or drinking, and believes that few diseases arise from it; and on the , against the equally absurd extravagance of a tribe of modern cs, whose avowed principles, if fairly carried out, must finally reduce us to an elementary diet of bread and water—principles which are as much at variance with physiology and philosophy, as they are with comfort and rational gratification.

But we pass from this to state what we hold to be a serious charge against our author as a professional man and a professional writer. There is a tone of arrogant assumption and insolent superiority pervading the whole work, totally unbecoming in any philosophical writing, particularly in a writer on medicine. He gives himself the air, throughout, of one who has made a great discovery in medicine —a discovery which ought to revolutionize entirely the practice with respect to those diseases to which it relates; and which nothing but stupidity or ignorance can lead any one to oppose. Still he allows, with the indifference of conscious superiority, that he does not expect the general admission of his views at once, because the professors of the healing art are a set of mere routinists, mechanical empirics, whose practice is a mere trade, who are ignorant of the first principles of philosophical reasoning, and who will stupidly or wilfully shut their eyes to the light which he has been diffusing about them. This temper of mind is not shown in a single sentence or paragraph. It is the pervading spirit of the book. There is not a chapter which does not contain some indication of it.

And the chief cause which he assigns for this degraded state of the profession, is the inaccurate and faulty mode of reasoning generally adopted by physicians. The fundamental objection made to them on this score, is that they have not adopted the methods which have been found so efficacious in the exact sciences. We do not reason, says Dr. M. from just principles, from a correct theory of disease. Let us see in what order he has himself proceeded in arriving at the truth, as no doubt he regards himself as a model of scientific reasoning. As long ago as the period of his college studies, it seems he had adopted that theory of the connexion of intermittents and neuralgia which it is the fundamental object of this work to inculcate. Subsequent observation has confirmed him in his theory. So that his theory has preceded and guided his observations, and has not been the result of them.

Now, this is not the exact order in which we have been accustomed to think men were most likely to arrive at just conclusions in matters of science, particularly in sciences where truth is to be the result of observation and not of calculation. An observer who begins his career with a theory already adopted, is likely to see only such facts, or facts in such a light, as will tend to confirm his theory. However impartial he may imagine himself to be, however desirous of avoiding the influence of his theory, he cannot escape it. It colours all his observations and reflections. There are few facts so stubborn that they cannot be looked into shape, or looked out of sight by a resolute speculator. Of this truth, Dr. M. affords a most memorable example. His whole work, so far as his peculiar theory is concerned, is one almost continued series of efforts to mould facts, in themselves negative, into such a form as shall support his theory. Of the nature of these efforts, we have already spoken sufficiently at large. No one can doubt, as he reads, that the author is perfectly sincere in all this; that he believes implicitly in the value and truth of his theory, and regards himself as a great medical reformer; yet we should think few could avoid seeing, on almost every page, through what a cloud of prejudice he has been in the habit of observing facts himself; and how little qualified he can be to form a candid judgment concerning the facts related by others. Recovery from disease under the care of others not agreeing with him in opinion, is attributed to accident, or to the efforts of nature; the fatal results in their practice, to wrong management growing out of a wrong theory, or rather no theory. The success of his own practice is always, of course, the result of a correct theory.

Dr. Macculloch frequently alludes to the extent to which he has been engaged in the study of the accurate sciences, and to his limited experience in the general practice of medicine. These two circumstances account for many of the strange sentiments which he expresses. It is natural that a person accustomed to the exact methods of the accurate sciences, and not very familiarly conversant with the mode of observation and reasoning necessarily resorted to in medical inquiries, should be somewhat discouraged by the uncertainty too often attendant upon the results of those inquiries, and be disposed to draw comparisons unfavourable to medical reasoning, thus attributing to the mode of reasoning, what is in fact due to the nature of the subject itself. The subject does not admit of the same mode of reasoning. One would think this had been tested sufficiently a hundred years ago. The application of mathematical calculations and demonstrations to physiology, was attempted by those perfectly competent to the attempt. The unanimous voice of the profession has pronounced that they have failed. The most judicious writers on physiology of the present day have explicitly taught the difference existing between physical and vital laws, and the distinct modes of investigation arising out of that difference.

It has been generally asserted, that this difference depends upon a difference in the laws themselves; that while physical laws are certain and uniform in their operation, vital laws are uncertain and irregular; that whilst the former are constant, the latter are inconstant; that the former are susceptible of measurement and calculation, whilst the latter are not. To a certain extent this is practically true. We admit that the laws of life do not admit of any calculation with regard to their results; but we believe that it is so, not from any want of precision and certainty in the laws, or of uniformity of regularity in their operation, but from the want, on our part, of the means of ascertaining the circumstances under which, at different times, they operate. Our faculties do not permit us to get at all the facts of the case—to obtain all the materials for a correct judgment. Hence the results appear to us as if they were produced by powers in themselves mutable and uncertain; whereas the mutability and uncertainty in the phenomena, from which we judge, grow out of secondary and collateral circumstances.

We find, even with regard to physical laws, wherever there is the same want of materials for judgment, that there is the same variety and uncertainty in the results. When we can have access to these materials, we find chemical and mechanical laws certain and undeviating in their operation, and therefore susceptible of calculation: but where this is not the case, they are as uncertain as the laws of life, and afford as little room for calculation. No one, for instance, will deny that the winds, and all the phenomena of the weather, are the result of the chemical and mechanical laws of the universe, and that they are regulated by principles as uniform in their ultimate operation as those which govern the motions of the planets. Yet what phenomena are there in living bodies which defy calculation more than those of the wind and weather. The cases are precisely analogous. The laws are in each case the immutable laws of nature; certain and undeviating in their operation; the uncertainty is in the phenomena: it arises out of the great variety of circumstances which may call these laws into action. Now, both with regard to the functions of life, and the changes of weather, we cannot get at the knowledge of all these circumstances, and this not only from the nature of our faculties, but also from the very complication of the phenomena themselves, we cannot appreciate them, consequently in both instances calculation is impossible.

But in many cases where physical or chemical laws are concerned, we can get at a knowledge of all the circumstances capable of affecting the result, and then we can calculate what the result will be. Now this can seldom or never happen where the vital laws are concerned, because from the nature of our faculties, our means of investigation, and sources of knowledge, we cannot be sure that we are aware of all the circumstances which may alter the result. The difference is precisely this; where we know all the essential conditions of the facts from which we are to judge, we may calculate and we can demonstrate; where we do not know all these conditions, or where we are uncertain whether we know them or not, we can only approximate to the truth, and we must be satisfied with such a degree of probability as the case admits.

Hence it follows that in physical science, one fact, or one series

The fundamental principles of the doctrine of homöopathie, as professed by Hahnemann, are embraced in the law *similia similibus curentur*, according to which, to cure a disease "properly, easily, quickly, and permanently, some medicine must be selected, which possesses the property of exciting similar symptoms, (ὁμοιον παθος.) to those of the disease itself. This, it will be conceived, is at variance with the maxim first promulgated by the father of physic, and generally acted upon: that diseases are cured by acting upon the principle of *contraria contrariis*, or endeavouring to eradicate the morbid affection, by exciting one of a dissimilar nature. But notwithstanding this difference, it has been shown by Hahnemann, that even Hippocrates was not entirely ignorant of the law to which we have alluded, for in several parts of his writings we meet with expressions which are in perfect accordance with the principles of homoopathie. Thus, in his fifth book of Epidemics, he describes a case of cholera, which, after having resisted all other remedies, was cured by the employment of hellebore, the tendency of which, when administered in a state of health, is to give rise to that disease. Another example has been quoted by Hahnemann, as follows: δια τα ὁμοια νουσος γινεται, και δια τα ὁμοια προσφερομενα εκ νοσευντων υγιαινονται—δια το εμεειν εμετος παυεται. But however strongly this may bear upon the principle contended for, we think the following expressions, from aph. 46, sect. 2, are much more to the point, as the homöopathic principle is there illustrated, by the power which one disease exercises in displacing another. Thus, in speaking of the simultaneous existence of two pains, he says, Δυο πονων αμα γινομενων, μη κατα τον αυτον τοπον, ὁ σφοδροτερος αμαυροι τον ἑτερον. It is not, however, so much in the writings of antiquity, as in those of more modern times, that expressions are to be found, which contain an exemplification of the principles of homöopathie. Of these Hahnemann and his followers have collected a goodly number from different authors, a few of which we shall detail from the Organon, for the satisfaction of our readers. By Willis, we are informed, that in the destructive sweating sickness which ravaged a great part of Europe in the sixteenth century, ninety-nine in a hundred died, until it was treated by exciting a copious diaphoresis, after which nearly all recovered. Storrck and others succeeded in curing dropsy by the use of colchicum, yet the effect of that remedy is, according to the report of the same author, to produce a diminished secretion of urine, and a difficulty of voiding that fluid.* Goritz,† by the use of colchicum, cured a case of hypochondriasis and asthma, while Stoerck saw it excite great difficulty of breathing and symptoms of hydrothorax. Similar results were witnessed by Dr. Berge.‡ The *Flammula jovis* was observed by Stoerck to excite a scaly eruption over the whole surface of the body. He nevertheless used it successfully in the treatment of an obstinate cutaneous eruption.§ Murray,‖ employed the *Euphrasia* with success in cases of chronic ophthalmia; yet Lobelius states that it excites inflammation of the eyes. The well known effects of the *Rhus radicans* and the *Rhus toxicodendron* are to excite a troublesome eruption of the skin. Du Fresnoy and Van Mons have nevertheless employed them with much advantage in the treatment of herpes. The same articles have also been employed with success in paralysis, although we are told by Zadig,¶ that they occasion a loss of muscular power, and an alarming confusion of mind. The dulcamara, according to the report of Dr. Haen** and Fritze,†† excites convulsions and delirium, when administered in large doses; yet when employed in smaller portions it cures these affections. The same article has been employed with much benefit by Carrere, Fouquet, and Bateman, in cutaneous diseases; a frequent consequence of its administration is, nevertheless, to excite troublesome herpetic eruptions. Belladonna, according to Rucker, sometimes occasions a swelling of the whole body; it has nevertheless been successfully employed by Lalacker and Cirillo in dropsy. Boerhaave, Sydenham, and Radcliffe found the *Sambucus niger* very useful in anasarca, yet according to Haller, it frequently occasions a swelling of the body. The administration of stramonium, when carried to excess, occasions convulsions and even madness. Epilepsy and mania have, nevertheless, been treated successfully with this article, by Wedenberg, Rush, Archer, and others. The same is true of belladonna and hyoscyamus. Nux vomica has been found useful in the treatment of convulsions, by Herrmann, Valentin, &c. and its known tendency is to excite a convulsive action of the muscles. An almost constant effect of cantharides, administered internally, is to occasion strangury. It has, however, been much employed in the treatment of suppression of urine not proceeding from mechanical causes. It has also been used with success in gonorrhœa, by several practitioners. The soothing influence of alcohol, recommended by Sydenham, and of turpentine, by **Kentish**, is known by every one; and the same is true of the efficacy of frictions with snow and ice in cases of frost-bite; and all these may be brought forward in support of the law *similia similibus*, or of the doctrine of homöopathie. We might go on to enumerate many more instances of a similar kind, as an immense number have been collected by Hahnemann, but we prefer rather to proceed at once to the development of the leading principles of the doctrine, by which we shall be better enabled to perceive and appreciate the value of the facts adduced in its support.

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* περι τοπων των κατ ανθρωπον. S. 72

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* Libellus de Colchico, Vien, 1763, s. 12.

† And. Elias Buchner, Miscell Phys Med

§ Lib. de Flam. Jov. 1769.

¶ Hufeland's Journal, V

†† Annal. dez. Klin

‡ Journal de Med. XXII.

‖ Apparat. Med.

** Ratio Medendi.

> "The highest, and indeed the only duty of the physician," says Hahnemann "is the removal of human maladies, and the grand object of the healing art is the quick, easy, and lasting restoration of health, or the removal or complete annihilation of disease, under all its conditions, in the shortest, surest, and least prejudicial manner, and according to principles clearly conceived."*

Few persons, even the most orthodox, we are disposed to think, can raise an objection against this proposition, as it embraces nothing that is inconsistent with the ruling creed of all who are conversant with the principles of the healing art. Some may not, however, be so readily disposed to concur with the author, in what he considers the safest and surest method of curing disease; for, as has been already hinted, he does not propose to effect this important purpose, by acting upon the Hippocratic maxim of *contraria contrariis*, but as he affirms, upon the principles of a law entirely opposed to it, according to which, diseases must be cured by the employment of such remedies as are capable of exciting analogous symptoms to those of the malady itself. If the most extravagant enthusiasm, and an adherence almost devotional to a doctrine, can be considered as any test of its truth, that of Hahnemann certainly should rank high among the numerous speculations which have from time to time been submitted to the ordeal of our credulity; for he not only affirms it to have "originated with an all-beneficent deity, but that the time will come, when its influence, like the effulgence of the opening day, shall burst through the clouds of former times, and by its clear and unextinguishable light, secure to him his well-being." Could we but elevate our faith to this level, how anxious would be our aspirations after this grand consummation! how frequent our prayers for the arrival of that important day, when the lights of homöopathie, like the all-pervading influence of truth, shall rend the veil of ignorance which has for centuries enshrouded us, sweep from our sight, like the mists which obscure the horizon, the clouds of error which surround us, when truth shall triumph over falsehood, the bonds of disease shall be rent asunder, and man freed from mental anguish and bodily pain, shall only be brought to the termination of his existence by the wear of time! But far distant is, we fear, this epoch—long years of suffering and disease must yet be our portion, before we can realize these blessings. To mitigate those miseries to which we are exposed, is unquestionably allowed, and homöopathie may furnish a means, amongst others, of alleviating human suffering, but we cannot, with Hahnemann, indulge in the hope of its furnishing such a millenium for medical science; and we too strongly fear, that unless credulity should outlive his sober observation, he may yet be convinced of the fallacy of his high-wrought anticipations. But that our scepticism may not deter others from indulging in the consoling reflections and visions of happiness to which we have alluded, we will now endeavour to give an exposition of those principles which are to effect so much for mankind, availing ourselves, at the same time, of the opportunity of observing, that if, by any stretch of faith, or discipline of fancy, they can be brought to participate in the pleasing and consoling prospects which Hahnemann has predicted will be realized by the potent sway of homöopathie, we shall consider ourselves happy in having been instrumental in contributing to their enjoyment.

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* Organon, p. 105.

We must observe, *in limine*, that the author of homöopathie allows no quarters to *a priori Doctors*, or those who would solve the gordian knot of disease by reflecting upon the nature of its remote and proximate cause. The symptoms, with him, are every thing, and to them the physician must turn his attention, for that intelligence which can alone enable him to prescribe remedies with any certainty of success. He conceives disease to consist in—

> "Some invisible change in the organization, which is manifested by external symptoms." "This internal alteration, therefore, together with the corresponding assemblage of symptoms, constitutes the disease. The latter alone can be observed by the physician, at the bed-side of the patient—they are the only part of the morbid process of which he can have any positive information, or that can be of any importance to him in directing the treatment. The nature of the internal change of the organization, the *prima causa*, cannot be determined by him."*

The principles embraced in this proposition do not differ essentially from those of the ancient empiric sect, who held that nothing could be gained by reasoning upon hidden causes, and that medicine should be made a science of facts and observations, hypothetical reasoning, so much employed by the dogmatists, being rejected by them as only leading to error, and involving its votaries in unprofitable speculations. But however strong the arguments which may be brought forward against reasoning in medicine, we are not disposed to concur with Hahnemann in his rejection of all considerations having reference to the cause of disease, as useless, and leading to no important conclusions; for although it may be often difficult, or even impossible, to ascertain satisfactorily the modified condition of the organization which constitutes disease, we may, from our knowledge of its healthy properties, and the manner in which it is influenced by external agents, arrive at principles, which, although hypothetical, will often better aid us in the application of our remedies than the most scrupulous attention to symptoms. Indeed, all knowledge, except the merely mathematical, is blended more or less with hypothesis, and some of the grandest principles of philosophy have been unfolded by this species of ratiocination. If merely reasoning upon the phenomena presented by the falling of an apple, could conduct Newton to the discovery of the important principles of attraction and gravitation, what may we not hope from a similar process of reasoning in medicine, in which the data are so numerous, and the examples so well calculated to lead to the development of truth! It may, however, be urged, that it was not by hypothesis the efficacy of Peruvian bark in the treatment of intermittent fever was discovered, or the protective power of the vaccine against the small-pox. But instances of this kind are unfortunately rare, and must only be received as exceptions to a general rule. If they would hold good throughout, we should be constrained to admit that empiricism should rank above all the learning of the schoolmen, and that Hahnemann has legitimate reasons for his attachment to homöopathie, and his objections against the refined dialectics of the dogmatists. The present state of human knowledge, however, abounds with evidences of the advantages of reasoning upon principles which are obscure—and in medical science especially, examples without number could be adduced, of the development of important facts, and the attainment of valuable conclusions, by a proper exercise of this power. Analogies are in this department peculiarly strong, and by collating the unknown with the known—by tracing out the exact relations between objects, which approximate by their affinities, or contrast strongly by their dissimilar properties, some of the most interesting principles of our science have been unfolded. Contrary, therefore, to the assumption of

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* Organon, p. 107.

Hahnemann, that the symptoms are the only part of the disease of which we can take cognizance, or that can avail us in the application of remedies, we think we are borne out by truth, when we assert, that much may be gained by a due consideration of the remote and proximate causes. We will suppose, for the sake of illustration, two individuals, as near as possible under the same circumstances as regards constitution, temperament, and habit, are exposed, the one to a cold, damp atmosphere, the other to malaria: both will probably be affected with fever; both will have heat of the skin, frequent pulse, thirst, furred tongue, pain of the head and eyes, deranged secretion, &c.: yet shall we be told, that both can be cured by the same treatment, and with the same facility? Does not experience prove, that the one may, in a majority of instances at least, be removed by abstinence, confinement within doors, and the use of diluent drinks; and does not the same unerring source of information teach us, that in the latter case much more will be very generally requisite to restore the healthy equipoise of the functions? If the principles of Hahnemann were correct, and all other considerations than the mere symptoms of disease were to be disregarded, the same treatment should be applicable to both cases, and the same success should attend its employment in the one as in the other.

The great champion of homöopathie not only contends that the symptoms are the only part of the disease with which we are interested, but by the same species of philosophizing, wishes to persuade us, that to restore the deranged organization to its healthy state, we have only to remove the assemblage of symptoms which constitute its outward manifestations. He observes, that—

> "The internal invisible diseased condition, and the external assemblage of symptoms, are so essentially and intimately connected with each other, and constitute so important a part of the disease during its entire progress, that the first necessarily rises and falls with the second: they must both be present at the same time, both decline together, so that whatever gives rise to the group of symptoms, generates, at the same time, the internal morbid condition. Whatever removes these symptoms, must remove at the same time the internal derangement, as the destruction of the one without the other cannot be conceived, nor is it practicable by any process "*

The truth of this proposition he endeavours to sustain by a train of reasoning, which he himself no doubt considers conclusive, but which to us appears little better than the most glaring sophistry. His conclusions are deduced from an assumption, which, under a fair and legitimate construction, must be allowed by all to be correct: that no effect can exist without a cause, and *cessante causa cessat effectus.* But this law, when applied to the relationship between the causes of disease and the sufferings which they occasion, must be construed with some modification. It would be absurd, under any circumstances, to maintain the converse of the proposition, yet all experience has shown, that diseases, when once excited, often continue their career long after their original cause has ceased to operate, and that they are kept up or cherished by a new train of circumstances, created by the agency of the *prima causa* itself. There is scarcely a disease, except the merely surgical, which does not afford an exemplification of this principle. The proposition, however, as constructed by Hahnemann, does not imply that we are first to remove the cause before we can subdue the symptoms, but exactly the contrary: that by putting a stop to the latter, we at the same time vanquish the former. Thus, to conform to Hahnemann's principles, instead of adopting the maxim quoted above, we must, as has been correctly observed by Rau, reverse it, and say *effectu remoto, evanuit causa.** This appears to us like beginning a task at the wrong end, and giving all our labour a retrograde tendency. We think that we should be acting with quite as much reason, in attempting to extinguish the awful heavings of a volcano, by throwing back upon it its ejected lava, or to controul the whirlwind, or rule the storm, by gathering together the fragments occasioned by their devastating influence, as in essaying to eradicate disease merely by the removal of its symptoms. Indeed, if no other objection could be urged against this course, one of no inconsiderable force is furnished by the fact, that individuals often fall victims to diseases of which no outward manifestations can be at any time perceived. The records of the science furnish numerous examples of this kind, but we shall content ourselves with mentioning one detailed by an individual who is by no means illiberally disposed towards the conclusions of Hahnemann. A person had been affected, for a length of time, with a chronic disease, which was supposed to proceed from an external fistulous sore of the chest, accompanied with caries of one of the ribs. On examination of his body after death, the duodenum was found black, and so much softened, that it could not sustain the slightest force. The patient had suffered no symptoms of indigestion, no loathing of food, or vomiting, but had generally a good appetite. Here the most acute homöopath could not have discovered, from the symptoms, the nature of the malady; indeed, there were no symptoms present—the all-important part of the disease, according to Hahnemann's views, was wanting, yet the patient was carried off by a profound lesion of an important organ. But setting aside cases of this kind, as beyond the ken of all parties, let us suppose an individual has committed a debauch; his stomach is oppressed, nature perhaps makes an effort to relieve herself by vomiting: the disciple of homöopathie would at once second her efforts by exciting free emesis. But by this alone complete success could not in all such cases be obtained; for the individual would still be affected with cardialgia, heartburn, eructations, and other distressing symptoms, which would exact other remedies for their removal. Or, to render ourselves still more intelligible, we will imagine an individual affected with violent inflammation of the brain, attended with intense pain of the head. The homoopath having regard to symptoms alone, would probably prescribe opium, because it excites pain of the head. But the allopath, reasoning upon the phenomena of the case, would determine its true character, and would conduct it to a safe issue by antiphlogistic treatment, while the employment of the opium could not fail to exasperate all the symptoms.

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* Organon, p. 111.

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* Ueber den Werth des Homöopathischen Heilverfahrens, p. 30.

Attaching, as they do, so much importance to symptoms, the homöopaths have carried their refinement, in the observance and enumeration of them, far beyond what was "ever dreamed of by man before." No pain or ache, however insignificant, is allowed to escape their all-scrutinizing researches; they suffer no nook or corner of the system to pass unexplored, in search of some symptom upon which to found a part of their curative indication. The mind's secret recesses cannot escape their penetrating glance: its various faculties and manifestations are travelled over, with something of the scrupulous attention that the mariner surveys his chart in search of shoals and quicksands. They dwell upon the activity and weakness of the mental powers, the pleasing or gloomy tenor of the reflections—where deep melancholy sits enshrined, or hope and joy bestrew the scene with flowers—the feelings by night and by day—influenced by sunshine or storm, and even "dreams begot of vain fantasy, which gallop night by night through lovers brains," are magnified into the importance of capital indications. Nay, a twinge of the toe, a hair of the beard, or even the ominous mole upon the cheek, cannot elude these refined explorers in the world of symptoms. But in the prosecution of these researches, they are not actuated by a zeal for the discovery of new diseases—like the voyager who embarks upon the sea of discovery, in search of new worlds, to which he may give a local habitation and a name—but are content with merely observing the incongruous objects which flit incessantly across their fancy, and only catch the faint impress of their image as they fly. Under the empire of homöopathie, the whole category of human maladies, "macies et nova fibrium cohors," "aged cramps and dry convulsions" are swept away. The pest of the Levant, and the pains of the tooth-ache, are reduced to the same level, and disease is made a perfect unit—one and indivisible, consisting of an assemblage of symptoms, from which, according to them, the honourable distinction of specific appellations should be entirely withheld. It matters not whether the patient be affected with a fever or a dropsy, an apoplexy or the gout, symptoms alone command attention, and if they be the same in both, the same remedies are of course to be prescribed. Thus, it will be seen that they go a step beyond Rush in advocating the unity of disease: for, although he considered it essentially the same, under all circumstances, he nevertheless admitted specific distinctions, founded upon accidental modifications. We are not one of those who direct their remedies to the name of a disease, or who would bleed an individual merely because he had an apoplexy, or purge another because he was labouring under a fever, yet we are not disposed, with Rush, to annihilate the whole labours of the nosologists with one fell swoop, and still less, with Hahnemann, to withhold from disease all distinctive appellations, however inadequate they may be to furnish any accurate idea of its nature. We are too well convinced of the importance of arranging diseases in groups, according to their affinities, and applying to them such denominations as may serve to distinguish them.

The next feature of homöopathie which we shall notice, is not unlike the principle already quoted from Hippocrates: that when two diseases occur in the system, at the same time, the greater destroys the lesser: or rather the well known proposition of Hunter, that two diseases cannot exist at the same time. This sentiment is maintained, as well in reference to disease properly so called, as to the impressions awakened by the influence of our remedies. An important difference is, however, drawn by the homöopath, between these two conditions. The causes of disease, with some few exceptions, do not possess the absolute power of exciting their usual train of morbid phenomena, unless the organization has been previously put in a state of predisposition, by the influence of some cause which can change the nature of its susceptibility, and dispose them to take on irregular and anormal actions. Medicines, on the contrary, excite in all individuals, under all circumstances, and at all times, a particular series of phenomena, which are peculiar to them, and to develope which, no predisposition is necessary. To explain the law alluded to above, it has been affirmed, that a peculiar affinity exists between the organization and the disease, and the peculiar, innate, immutable laws of the latter, render the former incapable of assuming an affinity for a second disease, whilst the first continues. The new disease can, therefore, only affect that already in existence, by constraining the organization to assume that condition which will admit of the two morbid affections becoming united, so as to constitute a third, corresponding to what is generally called a complicated disease. But a disease of superior force to that already in existence may displace it, by virtue of its greater power, provided it be homogeneous in its character. It is upon this principle that all our medicines produce their remedial impressions; an effect which they produce the more readily, in consequence of the greater susceptibility of the system to the effects of remedies, than to those of disease. To ensure this, however, it is necessary that the remedy selected should be homöopathic, or capable of exciting analogous symptoms to those which it is intended to remove; when this is the case, it proves successful, by establishing an impression of greater intensity than that already in existence, which therefore supplants it, and removes it from the system.

But to trace more clearly the laws which regulate the conflict between diseases themselves and between remedies and disease, we must consider the relations they bear to each other; their comparative affinities with the organization, and the manner in which one displaces or modifies another. We shall discuss this subject under three heads:—1. The conflict between chronic diseases. 2. Between acute and chronic diseases, and 3. Between acute diseases.*

When the organization is already affected with a chronic disease, it possesses an immunity against the invasion of another chronic disease of the same kind, but of weaker force, or of a different kind, even when it possesses greater power. Under the latter circumstances, the two diseases being heteropathic, or unlike, the one cannot cure the other. The stronger, however, may suspend the course of the weaker, until it has run its course, or they may become blended, to constitute a complicated disease. When one disease is only suspended by the other, as soon as the predominant affection ceases, the other is re-developed, and runs its course.† Examples of the suspension of one disease by another are not rare. Herpetic

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[*] Bischoff.

[†] Hahnemann Organon, p. 125, Bischoff, p. 39.

eruptions have been known, frequently, to suspend the deadly course of pulmonary consumption, but as soon as the affection of the skin has been cured, that of the lungs has resumed all its former violence. The influence of pregnancy in producing the same effect, is known to all. Hahnemann[*] affirms, that individuals affected with chronic diseases, have escaped dysenteries, and other affections which prevail epidemically. TULPIUS[†] describes the cases of two children, who experienced a temporary case of epilepsy, by the development of tinea capitis. In both instances, however, the convulsions recurred as soon as the affection of the head was cured. SCHOPF[‡] saw a herpetic eruption dissipated by an attack of scurvy, but as soon as the latter was cured, the former returned: and we are told by REIL[§] "mania phthisi superveniens eam cum omnibus suis phænonimis auffert, verum mox redit phthisis et occidet, abeunte mania." We mention these examples from amongst many others which might be brought forward to illustrate the principle contended for by the homöopaths. But while we concede to them all the weight they deserve, it must be confessed, that the exceptions are both numerous and forcible. Do we not, in effect, often see syphilis and scrofula running their course together, and mutually exasperating each other? and the same is true of many other affections. The following case from Bischoff[‖] is much to the point. An individual, who had been occasionally subject to attacks of epilepsy, became dropsical. The distention of the abdomen was enormous, and from the time this inordinate accumulation of water took place, the attacks of epilepsy, which had not before recurred more than once in the course of twelve months, took place almost daily. Cases of this kind must, however, only be received as exceptions to a rule, which, to a certain extent, is unquestionably well founded; for the power of one disease to suspend another, is manifested almost daily, to every practitioner of medicine, and the same result not taking place under all circumstances, argues no more against the principle, than the inefficacy of a cathartic to cure every case of fever, furnishes an argument against its employment in that disease. Indeed, in this very proposition, is merged one of the most important therapeutic principles of the allopaths, that of curing diseases by what is called revulsion, or of overcoming one irritation by substituting another in a remote part of the system. Even the most sceptical must, therefore, admit, that this law is, to a certain extent, well founded, although they may not allow it so much sway as has been conceded to it by Hahnemann, or agree with him in his explanation of its modus operandi.

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[*] Organon, p. 124. [†] Obs. Med. Lib. I. [‡] Hufeland's Journal, XV. II.
[§] Memorab. Fasc. 3,171. [‖] Page 40.

But one chronic disease not only possesses the power of warding off, or suspending another; it may even protect the system against one of an acute character. This is even observable in those cases in which the chronic disease is the weaker of the two, provided they are of different characters. It is stated by LARREY, that those who were affected with herpetic eruptions and scurvy, escaped the plague of Egypt. Perpetual blisters and issues were long ago observed by HILDANUS and PLATER to afford a protection against the same disease. HILDENBRAND observes, that persons who are affected with phthisis pulmonalis, escape the contagious typhus; and the same immunity is possessed by such persons against the yellow fever. In the epidemic typhus which prevailed so extensively in Germany in 1813 and 14, permanent blisters to the inside of the arms, together with frequent ablutions with chlorine, we are told by Bischoff, exercised so great a degree of protecting influence, that by using them he entirely escaped this disease, with which most of those who were about him were attacked. But notwithstanding the force of all these examples, the exceptions to this proposition are too numerous to justify us in acknowledging it as a principle which will hold good, even under a majority of circumstances. How often, indeed, do we observe persons labouring under chronic diseases, becoming affected with those of an acute character? Fever supervenes upon epilepsy; pneumonia upon gout or syphilis; catarrh upon rheumatism; and there is scarcely an affection in the range of nosology, which may not take place upon some chronic disease, already implicating the organization. We are, however, clear to confess, that the law has some foundation in truth, and that the protective agency of chronic diseases is frequently efficient to a remarkable extent, but we are at the same time constrained to believe, that the principle can never be rendered available to the extent imagined by Hahnemann.

Thus far we have been supposing that the acute disease is so weak as to be repelled, as it were, by the chronic affection already implicating the system. In some cases the latter does not prove adequate to the achievement of that end, and the acute disease also takes effect. Under these circumstances the pre-existing disease is suspended, until that which supervenes upon it has run its course, after which it resumes its station, and advances as before. The symptoms of consumption are not unfrequently suspended by a violent inflammation of the stomach, intestines, or of some other organ; but as soon as the new disease is removed, the consumption again makes its appearance. It must not, however, be denied, that numerous cases of an opposite character occur. Indeed it is by no means unusual for an acute disease taking place upon a chronic, to run its entire course without exercising the slightest influence upon it. We have known individuals who were subject to epilepsy and hysteria, to be affected with those diseases during the entire course of an acute fever, and it is not rare to meet with syphilis, and a number of cutaneous eruptions, continuing unchanged under similar circumstances. But these exceptions, while they invalidate the proposition which we are considering, tend to corroborate one of Hahnemann's leading principles: that diseases are cured by exciting similar impressions to those in which the morbid condition consists. In the examples detailed, the new disease being heteropathic, cannot cure the pre-existing affection, because it is incapable of exciting the homoopathic state which corresponds with it; consequently both diseases run their course together.

The same law that regulates the influence of chronic diseases upon each other, has been applied by Hahnemann to those of an acute character. When an individual, already labouring under an acute disease, becomes affected with another of a different kind, but more intense grade, the primary affection is, according to the homoopaths, suspended, while the stronger affection runs its course. The exemplifications of this law are numerous, and are opposed by fewer exceptions than either of the examples which have been mentioned. It not unfrequently happens when small-pox and measles prevail at the same time, that whichever disease becomes first established in the system, repels the other, or is suspended by it, according as the one or the other possesses the greater power. Even when the rubeolous eruption has made its appearance, that of small-pox has become developed, and suspended the primary affection, until the pustules of the latter have dried up, after which the eruption of the measles has run its regular course.* On the other hand, it has happened, that on the sixth day after inoculation with small-pox matter, the eruption of measles has made its appearance, and compelled the small-pox pustule to remain stationary, until the measles have run their course of seven days.† The same antagonizing influence is exercised between measles and the vaccine disease. In a case observed by KORTUM,‡ on the sixth day after vaccination, when the pustule was almost matured, the individual was attacked with the eruption of measles, and from that period until the measles had run their course, the vaccine pustule remained stationary, and did not become perfect until the sixteenth day. Hahnemann, moreover, mentions a case in which the mumps were suspended, for a time, by the vaccine disease, and Jenner another, in which the same influence was exercised over scarlet fever. But while we grant the full force of the arguments adduced, it must be admitted, that in many cases no interruption of the kind alluded to takes place. Several cases are related by Bischoff, in which small-pox and scarlatina progressed simultaneously together, without the one exercising the slightest controul over the other. The law in question must therefore be admitted with some restrictions, although the principle involved must be allowed by all to possess an important bearing when applied to therapeutics. But under any of the circumstances detailed, the conclusion that two diseases cannot exist in the system at the same time, as affirmed by Hunter, cannot be sustained; for even when a suspension of one of them takes place, the primary disease must still be allowed to exist, but in an obscured form, its usual manifestations only being suspended. This also furnishes an additional argument against one of the propositions of Hahnemann, which we quoted above: that the removal of the symptoms of a disease necessarily implies the annihilation of the disease itself.

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* Organon, p. 126.

† Hunter on Venereal.

‡ Hufeland's Journal, xx. 3.

But the homöopaths attach much more importance to a law which we shall now examine: that when an individual, labouring under any particular disease, becomes affected with another of a homogeneous character, but of a more intense grade, the latter completely annihilates the former. Indeed, the proposition constitutes the very strong hold of homöopathie, and the whole doctrine must either stand or fall, according to the truth or falsehood of the principle which it involves. "By this law," says Hahnemann, "we are taught at the same time the process by which diseases are healed by nature, and that by which they should be cured by art."* Under these circumstances, we have not a mere suspension of the pre-existing disease, but on the contrary, it is completely supplanted from the system; neither do we ever have the two affections blended to constitute a complicated disease, as sometimes takes place between diseases of a dissimilar nature. The principle assumed is, that the disease already existing in the organization, consists of a particular train of actions or vital movements, the new disease, being of a similar character, must also consist of an analogous series of vital phenomena. Hence it follows, that the second must be repelled by the first, if the first possesses the greatest degree of intensity, or when the opposite condition prevails, viz. when the new disease is stronger than the primary affection, it must of course supplant it from the organization, by exciting an identical train of actions, only differing from the first in their greater intensity. To use a simile employed by Hahnemann himself, the weaker disease is destroyed, under these circumstances, in the same manner, that "the powerful rays of the sun obliterate from the retina the image made by the more feeble rays of a lamp."* We could adduce many examples of the power of one disease to cure another, but shall confine ourselves to a few in which this faculty is most strongly developed. So far as cough and febrile symptoms are concerned, there is a strong resemblance between hooping-cough and measles: and it appears from the evidence of Bosquillon, that these two diseases are, as regards their therapeutic relations, homoopathic in their nature. He describes an epidemic in which both were simultaneously prevalent. Many who had the measles, escaped the hooping-cough, and vice versa, a number who suffered from the latter disease, acquired thereby an immunity against the former. Kortum mentions an instance of an obstinate herpetic eruption which was permanently cured by the recurrence of measles,† and Rau describes the case of an individual, who had been for a long time subject, on every change of weather, to a troublesome eruptive disease about the face, neck, and arms, which never recurred subsequently to a severe attack of measles. He also states, that he has frequently observed, that those who had been subject to periodical head-aches, were relieved from that source of suffering, after an attack of typhus, in which pain of the head was a prominent symptom. We have ourselves seen more than one instance of persons who had been for a length of time subject to rheumatism, relieved from their sufferings by the memorable dengue, which lately afflicted our population. But however plausible such cases may appear, in reference to the principle in question, it may be legitimately asked, if in those cases, the cure of the original diseases should be attributed to the development of a new train of analogous symptoms, or to the establishment of an irritation which transcends that already existing. We would answer most unhesitatingly to the latter, though in this we should be at open variance with the homöopaths. If the inferences of homöopathie were correct, one eruptive disease should always cure another, yet we could adduce instances without number, to prove that such is not the case. The eruption of small-pox is often intermingled with petechiæ, the pustules brought out by the application of tartar emetic ointment resemble the variolous eruption, and erysipelas, scarlatina, measles, small-pox, &c. are not unfrequently blended; yet we do not observe that the one tends to cure the other, but rather the contrary; that the complication tends to exasperate the sufferings of the patient. Yet, notwithstanding the objections which might be urged against this principle of the homöopaths, it constitutes the very ground-work of their entire system of therapeutics: "that a disease can only be cured by a medicine which excites a homogeneous or similar affection to that already in existence, the effect of the remedy being nothing more than to develope an artificial disease. We have thus passed in review the principal features of homöopathic pathology. We have seen that in many respects the principles upon which the doctrine is founded have been acknowledged: in some they are at variance with the opinions generally adopted, and in several they are manifestly irreconcilable with truth and reason. We shall next examine the leading principles of the homöopathic therapeutics, and endeavour to point out its most important peculiarities.

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* Organon, p. 135

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* Organon, p. 136. † Hufeland's Journal. ‡ Ueber den Werth, &c. p. 85.

The proposition upon which the homöopaths found the whole of their system of cure, has been repeatedly adverted to: indeed, we are told by them, that in the attainment of this end, we have only to imitate the course adopted by nature, which we have seen consists in curing one disease by establishing a second, possessing analogous symptoms. We have already observed, on the authority of the Hahnemannists, that the artificial remedial impression should be placed upon the same footing as an artificial disease, and that it supplants that with which the organization is already involved, by exciting an analogous train of symptoms, or vital movements, to those which appertain to the primary affection. These are the principles upon which we are to found all our therapeutic procedures, and the only difficulty with which we have to contend, is the just apportionment of the remedy to the disease which we wish to remove. Another peculiarity of the homöopathic system of cure is, that the properties of these remedies are to be tested by repeated experiments upon individuals who are in a perfect state of health, instead of the usual plan of administering them to those who are diseased. In conducting these experiments, the most patient and unwearied attentions have been bestowed by the homöopaths, not only in guarding scrupulously against all sources of contingent influence, but likewise in noticing, with the greatest exactitude, the multifarious changes produced in the several functions of the system, as the pulse, temperature, respiration, secretions and excretions, sensations, volitions, &c. With a firmness of purpose, and a spirit of perseverance which scarcely admits a parallel, Hahnemann, and some of his followers, have submitted an immense number of the most active articles of the materia medica to this ordeal of experience; in the execution of which, their stomachs have been tortured in a thousand forms, the thought of which the modern Broussaisan, wrought up to a high pitch by his constant dread of gastro-enteritis, could not regard but with consternation and horror. Amongst the articles which have been tested by the Hahnemannists, we find many of the most energetic character, and some appertaining to the class of active poisons, as belladonna, hyoscyamus, arsenic, &c. Some idea may be formed of the diligence with which experiments of this nature are conducted, and the extreme nicety with which symptoms are discriminated and noted down by the homöopaths, when we state, that to many of the articles we find affixed more than a thousand symptoms, observed as the result of their operations on the living organization. Chamomile alone is said to excite four hundred and forty-eight, and nux vomica thirteen hundred. The results of the researches of these indefatigable explorers, are almost incredible; and if their penetration in the discovery of symptoms should improve, with time, the Royal Library of Paris, or that of the Escurial, would not, in the course of a century, be sufficient to contain their *Arzneimittellehre*, or materia medica alone, divested of all other details.

We have already stated, that the organization is, according to Hahnemann's views, much more readily affected by the artificial, than by the natural disease, consequently, a very small quantity of medicine is sufficient to excite that degree of action which is requisite to supplant the primary morbid affection. Acting upon this principle, the homöopaths have been gradually reducing the doses of their medicines, until they have brought them down to an exiguity, which almost staggers the easiest credulity. The items of scruples and drachms do not figure in the homöopathic pharmacopœia, and even grains and minims only meet the eye, as masses of matter which have to be reduced to decimal portions, as numerous almost as the sands on the sea-shore. The grand ultimatum, with the practitioner, is to ascertain the smallest quantity which can possibly affect the organization with sufficient intensity to transcend the organic movements already existing, and to attain this, the different articles have been reduced to infinitesimal quantities, which the known principles of arithmetic are scarcely competent to enumerate. It is assumed as a law by the homöopaths, that the activity of medicines does not decrease in the ratio of the reduction of the dose. Thus, says Hahnemann, page 297 of the Organon, eight drops of the tincture of any medicinal substance does not operate with four times the activity of two drops, but with not more than twice the power. If we add a single drop of a medicine to ten drops of any simple fluid, and take one drop, we shall not have an impression produced of tenfold greater intensity than that which would be developed by a drop of the same article, added to one hundred drops of the fluid, but scarcely double the effect, and so in the same ratio, until we reduce the article to infinitesimal proportions, its activity being increased by each reduction. So accurate are the calculations upon this subject, that we are gravely told by Hahnemann, "that he has seen one drop of the tincture of crab's eyes, decillionally diluted, produce exactly half the effect of a drop of the same quintillionally diluted, and this too, under the same circumstances, and in the same individual." The most extraordinary part of the whole system, is, that even these infinitesimal portions are deemed adequate, in many instances, to the removal of disease. A billionth, trillionth, or decillionth portion of a grain or a drop of various medicinal substances, are the doses with which the homöopaths combat diseases of the most formidable character, and that too with as much confidence as the modern allopath would use his scruple doses of calomel in yellow fever, dysentery, or hepatitis, or the Rasorist his overwhelming doses of tartar emetic. Who is to decide when doctors disagree, is a trite saying, but surely we have here grounds well calculated to awaken suspicions of the divine origin of the principles which have been held forth as the boon of safety to afflicted human nature. But reason and common sense must convince every one, that both parties here cannot be in the right. As might be supposed, this part of the doctrine, being calculated to strike the mind with most astonishment, is that which has excited, on the part of professional men, the greatest opposition, and doubtless, for the very same reason, has tended most to give it currency amongst the ignorant and credulous. It is not long since the world was thrown into a state of wonderful agitation by the influence of Perkinsism and Mesmerism, and even now the animal magnetists are in the full exercise of their mysterious machinations, before which fevers, phrensies, and the murky train of vile diseases, are nullified, with infinitely more success and certainty, than could be effected by the most energetic treatment.

But to return to the opposition which the champions of the Hahnemannic school have encountered, we must now turn our attention to those arguments by which the objections of the assailants have been met. We have already hinted, that the extreme exeguity of the doses administered by the homöopaths, is the feature in their doctrine which has excited the greatest opposition. To surmount this difficulty, Hahnemann has resorted to the explanation offered above, that the organization having a peculiarly active receptivity to remedial impressions, a very small quantity is sufficient to produce the desired effect, and that by minute division and dilution, their powers are augmented in arithmetical proportions, and that by a proper species of manipulation, they may be brought to an infinitesimal state of reduction, still maintaining, or even acquiring thereby, exalted powers. The homöopaths also attach much importance to the preparations or forms in which the medicines are employed, and lay it down as an axiom, that more than one remedial agent should never be employed at the same time. Adopting the principle of VON HALLER, in testing their remedies, and applying them to the treatment of disease, primum in corpore sano medela tentanda est sine peregrina ulla miscela indea transeos ad experimenta in corpore ægrota, they are particularly cautious in their regulations of the ingesta and circumfusa, that nothing shall transpire to thwart the refined operation of their pellets, and laboured solutions. The management of diet, therefore, constitutes a most important item in the koran of the homöopaths. With regard to the preparation of their medicines, they give the preference to powders, tinctures, and the expressed juice, as being the forms under which the different articles are best capable of exercising their power, and to the greatest advantage. But it is in the preparation of these that the grand secret of homöopathie is veiled, as it is only by the most laboured process of trituration, mixture, and retrituration, dilution, &c. almost ad infinitum, that they are brought to a condition to work the wonders which have been achieved by the zealous band of homöopaths. The following is the codex laid down for the preparation of the several forms of medicaments which appertain to the homöopathic pharmacopœia. The menstrua employed in the mysterious process of dilution, are water and alcohol for the tinctures and expressed juices, and the sugar of milk for the powders, not, as Hahnemann states, from any particular virtue these fluids possess, but because they do not interfere with the remedial impression. As a reason for this extreme dilution, we are told that medicines are more active in proportion as they are more diluted, because when diffused in a large quantity of a menstruum, a greater number of nerves are exposed to their direct influence. Suppose the medicament to be a tincture, or expressed juice, a single drop is to be mixed with a hundred drops of spirits of wine, and thoroughly shaken. A drop of this mixture is then to be added to another hundred drops of spirits of wine, and the process of shaking repeated; and so on, ad infinitum, if necessary, or at least until the ultimatum of reduction is obtained, at which we can secure the efficient operation of the article.

If the medicament is in powder, a grain is to be thoroughly triturated with a hundred grains of the sugar of milk, after which one grain of this compound must be triturated with another hundred grains of the sugar of milk, and the same repeated as often as necessary. We are, however, cautioned not to continue this process of trituration too long, lest we modify the properties of the medicine, and thus place it in a situation to excite other symptoms than those which properly appertain to it.

Having submitted his remedies to this patient and elaborate process, and studiously noted down the symptoms of the disease, the homöopath is fully armed and equipped for the contest, and if victory does not crown his labours, it is because there is some lurking miasm undiscovered, which thwarts the potency of the homöopathic operations, or some misconduct of his patient in the observance of this code of rules which are conjoined. Homöopathie must not, therefore, be considered as infallible, as like all other plans of attack, it is sometimes liable to the chances of defeat. But whatever is said in disparagement of its powers, its champions have adduced, in its favour, as goodly a number of successful and speedy cures, as can be claimed for any of the refined systems of this, or any preceding age. If these reports be faithfully made out, they either prove that the doctrines of Hahnemann have some foundation in truth, or that the science of medicine is all a hoax, calculated to gull a credulous community, and that in departing from the good old system of *le medicine expectante*, we have been literally poisoning our patients, and sending them out of the world with tortured stomachs and shattered systems. This is a question which we will not take upon ourselves to determine, but we are decidedly of opinion, that much of truth and sound argument could be brought forward on both sides.

We have now spoken somewhat in detail upon the subject of homöopathic pathology, and the general principles of therapeutics to which the doctrine naturally leads—in our Periscope, (Sect. Practice of Medicine,) will be found a few examples of the practice of the champions of this new code of medical philosophy.

Cures without number might be detailed, to show the efficacy of the homöopathic system of cure; some of a very interesting character have been detailed by Rau and others of the homöopaths. But we feel that we have already trespassed too far upon the patience of our readers, and that they are ready to exclaim, eheu jam satis verborum. We must, therefore, bring our observations to a close, in the accomplishment of which, it only remains for us to draw our inferences from the data which have been successively passed in review. Upon this point we need not say much, as we have already expressed our opinion in the course of these observations. Many of the pathological principles, we have seen, are enormous. Some of them are in accordance with received notions, and that which makes symptoms the only point with which the physician is concerned, is altogether absurd. The therapeutic inferences being drawn from the pathology, must be liable to the same objections. The extreme exeguity of the doses employed, we cannot conceive to be capable of producing any other effect than that which their ingestion is calculated to exercise upon the imagination. If these views be correct, and the instances of cure which have been reported can be relied upon, we are irresistibly led to the conclusion, that *la medicine expectante* is capable of achieving more than is allowed, and that it is extremely questionable whether our profession should be contemplated as a curse or blessing—or if this be denied, and homœopathie be allowed to deserve our confidence, few, we feel assured, will be disposed to deny, that Hahnemann has secured to mankind a blessing which should hand his name down to the remotest posterity. It would be much easier to take the billionth or decillionth part of a drop of medicine, than the scruples and drachms which we are compelled, under the allopathic system, to be constantly swallowing; the more especially, as in the Hahnemannic practice, even this minute portion is generally presented to the palate, with the agreeable accompaniment of a small sugar pellet, against which the stomach does not rebel, or the imagination revolt. We have stated the data. We leave those who have examined them to draw their own conclusions.

E. G.

BIBLIOGRAPHICAL NOTICES.

XX. *Dissertazioni et Altri Scritti Del Signor Dottore* GIACOMO TOMMASINI, *Professore di clinica Medica, nella Pontificia Università di Bologna, relativi alla nuova dottrina medica Italiana, Raccolti in parte da molte opere periodiche e d'altronde, in parte inediti, con note dell' Editore.* Tomo. 1. Bologna, 1821, Tom. 2 & 3, 1823. Tom, 4, 1824. Tom. 5, 1826.

Dissertations, and other writings of Professor TOMMASINI, *of Bologna, relative to the new Italian medical doctrine, &c.*

While medical science is making such noble achievements, and the march of improvement is rapid and cheering, medical theory seems still to retain its ancient character of instability. Revolutions in this department are indeed quite as frequent as in politics and morals, and if they are not effected at the expense of as much bloody warfare, their champions evince in the contest no small degree of warmth and noisy invective. These changes seem, too, to possess something of a national, or sectional character, each country having, as it were, its own code of medical doctrines, which, however, some individuals among them, are *heretical* enough not to adopt. Passing over former times, to turn our attention to the present, we find the French warm in their espousal and defence of Broussais; the Germans divided, relative to the principles of Hahnemann, or, as they are called, the doctrines of Homoopathie; the English, of Clutterbuck and Armstrong, the Americans of the Eclectics; and the Italians of the principles of Rasori and Tommasini, or the doctrine of counter-stimulus.

Amongst the advocates of this latter doctrine, Professor Tommasini stands pre-eminent, for although not its author, his zealous efforts, his commanding eloquence, and his philosophic reasoning, have, doubtless, done more to diffuse its principles, and give them their present popular currency, than the labours of any other individual. The volumes which have been noted at the head of this article, constitute a portion of the rich and valuable materials, which his genius and industry have brought forth, in support of the truth of the doctrine of counter-stimulus. They are made up, for the most part, of memoirs, or discourses, read before different societies, or institutions, some of them as early as 1806, or even before that time.

The leading article of the first volume, is a highly eloquent discourse, pronounced by the distinguished Professor, on the occasion of his entering upon the directorship of the Medical Clinic of Bologna, in 1815. The subject is—

"The necessity, in medical science, of uniting philosophy with observation—to this, succeeds some very elaborate observations on contagious fevers, and epidemic constitutions, to which is subjoined, a rejoinder to Professor Matthias, on the subjects of petechial fever, and the new medical doctrine. The last article, contained in the first volume, consists of the history of a violent case of enteritis, with a detail of the practice pursued, and a reply of the author to some objections urged against it.

"A young woman, already advanced to the ninth month of pregnancy, and cheered with the prospect of a speedy delivery, was exposed, on a remarkably cool evening, in September, and became affected with a painful sensation of the abdomen. Disregarding it, however, she again exposed herself to the same course, on the following morning. In a short time, violent pain of the abdomen ensued, followed by looseness of the bowels, sickness of the stomach, great thirst, and a remarkable depression of the pulse. Towards the afternoon, she became affected with considerable fever, a vibrating pulse, tension of the abdomen, and pain extending towards the region of the hips and kidneys. Having used frequent clysters of an infusion of chamomile, and small doses of magnesia, without any other effect than an exasperation of the pain of the abdomen, and fearing the occurrence of premature labour, she called a distinguished accoucheur, who prescribed venesection for the relief of the pain of the abdomen, and this was repeated twice in the course of the evening and the succeeding night. The blood presented the usual indications of the phlogistic diathesis. The tension of the abdomen still continued, and the slightest touch was productive of the most exquisite pain. These symptoms, together with the frequent griping of the bowels, unattended with natural discharges, the pungent heat of the skin, the vomiting, and the weak, contracted, and vibratory pulse, all too clearly indicated the case to be one of violent inflammation of the intestines.

"The symptoms pointed out continued throughout the succeeding day, in the course of which, the patient was delivered of a child, which only survived a short time. The relief which followed the delivery was only momentary the pain, tension of the abdomen, and other symptoms soon recurred with increased violence, and notwithstanding, the bleeding was two or three times repeated, and the patient was freely purged repeatedly, by means of small doses of magnesia, &c. she continued to grow worse. The prostration of strength now being extreme, it was resolved to administer a cordial mixture, composed of confectio, alkermes, and laudanum, to which was added a small quantity of wine and water, for drink, whenever the thirst was considerable. This had the effect of quieting, for the time, the irritability of the stomach, and diminishing the frequency of the dejections by stool. These benefits were, however, of only temporary duration, the symptoms all becoming aggravated in the course of five or six hours. Indeed, the case now had assumed a most alarming aspect. It was at this juncture, that Professor Tommasini recommended the employment of the hydro-sulphuret of antimony, which had been found useful in the diseases of the puerperal state, by a physician of Vienna. It was, accordingly, administered frequently in the course of the night, and was retained by the stomach. Indeed, it seemed, as though the vomiting was suspended by the use of the remedy.

"The night having thus passed away, at the dawn of morning the condition of the patient seemed desperate, the abdomen was much distended, and she no longer complained of pain in that region. She merely observed, in a feeble and hoarse voice, that she suffered much from a sensation of internal heat. The hands, feet, legs, and arms were cold, and covered with a clammy sweat; the pulse was small, frequent, and so irregular, as scarcely to be numbered; the forehead was bathed in a cold sweat, the face covered with the coldness of death, and the patient remained immoveable, except when disturbed by the vomiting. All these symptoms awakened a suspicion of the existence of gangrene. Under these circumstances, Professor Tommasini recommended the employment of ice, under the impression that it could not be injurious, and with the hope, founded on the encouragement of Boerhaave and De Haen, that it might prove beneficial. It was accordingly commenced at five in the morning. The patient having tasted it, declared that she found herself refreshed, and after using it, she stated that it relieved the sensation of internal heat. This encouraged her to take it freely, and the professor to administer it with a liberal hand, and in the course of a few hours she had taken frequent and copious draughts of the coldest iced water with lemon juice. After pursuing this practice for a short period, the patient slept for the first time, but with such wandering of intellect, such coldness of the extremities, and feebleness of the pulse, that it was doubtful whether this sleep should be considered favourable, or as the precursor of death. In a short time, however, she opened her eyes, and requested that the ice might be continued. The cold drinks were accordingly administered every two hours, and although the patient drank copiously, the vomiting did not recur, and she again fell into a tranquil slumber, which continued an hour. The coldness of the extremities now diminished, and the pulse became stronger. The patient resumed the iced drinks, which she continued for several days without intermission. She still, however, experienced occasional abdominal pains, but in a much less degree than before. The alvine dejections became less frequent; the vomiting was again threatening, but was dissipated by the use of the ice. The pulse manifestly increased in force, and by degrees warmth returned to the extremities. Some wandering of intellect again took place at night; but the pain was not considerable, neither was there much augmentation of the frequency of the pulse. She fell asleep about 12 o'clock at night, but took the ice whenever she awoke.

"On the following day, the sixth of the disease, after some hours of comfortable sleep, taken at intervals, the calm became still more permanent, the pulse softer, and more regular, the tumefaction of the abdomen subsided, the pain abated, the skin became soft, the dejections liquid, but of a natural smell, and the stomach was only disturbed by occasional flatulence, which was removed by the employment of the ice. The cold drinks and low diet were continued, and towards evening some indications of the establishment of the lochial discharge made their appearance. The patient became again a little delirious at night, and the mammæ began to tumefy.

"The delirium increased somewhat on the subsequent day: the mammæ became tense and painful, the abdomen more tense and uneasy, the pulse febrile and vibratory, and the pain and tumefaction of the abdomen, as well as the marks of excitement, being augmented at night, eight ounces of blood were detracted, which furnished the usual evidences of inflammation. The cold drinks were continued, and antiphlogistic injections were thrown into the bowels, tranquil slumbers succeeded, the lochial discharge became profuse, and a considerable quantity of wind was ejected, for the first time, from the alimentary canal. These circumstances tended to excite hopes of recovery, which were verified on the following day, when the pulse was found quiet, the skin soft and perspirable, the abdomen soft and flaccid, the pain subdued, and the alvine evacuations moderated, while the lochial discharge continued."

The same treatment was continued during the five or six subsequent days, with the addition occasionally of a small quantity of magnesia, acetate of potash, extract of rhubarb, &c. to unload the bowels. On the eleventh day it became necessary to repeat the bleeding, on account of some exasperation of the symptoms, which had the effect, in a short time, of overcoming all the conditions for the relief of which it was practised.

Such is a brief outline of the history of an important case of disease. We have not detailed it from a belief that the practice which was pursued was the best that could have been adopted, but from the conviction, that if properly considered, it is calculated to furnish some very useful indications. The disease was evidently one of what the Italians call the sthenic diathesis, although the prostration of strength was extreme; or, in other words, it was an example of a highly exasperated state of irritation of the alimentary canal, and consequently exacted the free employment of counter-stimulant remedies for its removal. Although the blood-letting was beneficial, in virtue of its counter-stimulant influence, no very striking results were obtained previous to the employment of the ice, which was followed immediately by an astonishing mitigation of all the urgent symptoms. It is precisely under these circumstances that the ontologists would resort to free and continuous purging, acting upon the antiquated absurdity, that "*you must purge until natural stools are produced,*" and thus hazarding the lives of their patients. To this must be added, that vulgar prejudice often prevails to such an extent, as to withhold from a patient, tortured with the most unquenchable thirst, even a mouthful of cold water, and to such minds the idea of allowing copious draughts of iced water, would convey the apprehension of immediate destruction. Yet facts here speak loudly in favour of the employment of cold drinks under the circumstances pointed out, and both reason and common sense proclaim the correctness of the principles which led to their employment. We have at present a patient convalescent from a very violent attack of enteritis, in which copious and repeated venesection, cups, and scarifications over the abdomen, warm fomentations, emollient injections, &c. were not successful in subduing the disease, until assisted by the use of copious draughts of iced mucilage, acidulated with lemon juice. In the treatment of the dengue, which has lately inflicted so much distress upon large portions of our community, and which was constantly attended with violent irritation of the gastro-intestinal mucous membrane, we found nothing so speedily successful in allaying the distressing symptoms which attended the first stage, as the free use of iced lemonade, and the application of pounded ice to the head and epigastrium.

But to return from this digression, to the work under consideration, we find the second volume containing several very important and interesting memoirs and observations. The first article is an exposition of the results obtained in the Medical Clinic of Bologna, during the three scholastic years of 1816–17, 1817–18, 1818–19. This exposition certainly speaks favourably for the doctrine of counter-stimulus, and the practice founded upon it, as out of four hundred and fifty-three patients admitted, within the time specified, thirty-five died, making the ratio of deaths only about seven and one-twelfth per cent. Under the heads of synochus, nervous and typhus fevers, we find fifty-seven cases detailed, of which four died, making the ratio of mortality in those diseases seven and one fifty-ninth per cent. Greater success than this could scarcely be expected from any system of practice, and the results here obtained are certainly well calculated to inspire us with confidence in the doctrines of the Italian school.

The next article gives an account of a remarkable case of constipation of the bowels, which continued for some time without much inconvenience. This is followed by some remarks upon a paper by Professor Mattheis, on the digitalis purpurea, which Tommasini, and most of the Italians, consider one of the most energetic counter-stimulants, a property which its known operation on the animal economy proves it to possess in a very high degree.

The next article is a reply to a second letter of Dr. Mattheis, upon the subjects of petechial fever and the new Italian doctrine. In the course of his reflections, the author insists, with much force of argument, and, we think, with an abundance of facts to bear him out, upon the inflammatory or sthenic character of the fever in question, and consequently upon the propriety of treating it by means of counter-stimulants, instead of bark and stimuli, which were employed by many of his contemporaries. The character of the disease, as well as the results obtained by experience, sufficiently testify the correctness of his conclusions, and the dangerous tendency of the stimulating practice. We regret that we cannot follow him through his arguments.

The second volume concludes with a very eloquent discourse upon the dignity of medicine. It is a well written and highly interesting address, abounding with enlarged views of the science, and calculated to elevate it above the base sordidness with which its walks too often abound.

The third volume is taken up with the consideration of the counter-stimulant properties of digitalis, in which is also contained the reply of the author to some objections made by Dr. Uberto Bettoli against the existence of such a property in the article. It contains the most elaborate discussion of the subject that we have met with, and we regret that from our restricted limits we cannot furnish an exposition of the author's views.

The contents of the fourth and fifth volumes are not less interesting than those which precede. We cannot designate all the articles, but will mention one, upon the subjects of blisters and rubefacients, which, from the ability with which it is drawn up, as well as the sound principles it contains, deserves to be attentively studied. The author, with much justice, ascribes the efficacy of these applications to their power of creating revulsion, and fully exposes the ridiculous notions of those who employ them at one moment to diminish action, and at the next to excite and support the system Even in the low stages of typhus, in which they have been so much employed for their alleged stimulating influence, the professor clearly proves, that much of the debility and prostration depends upon the irritation being concentrated in some vital organ, and that the efficacy of blisters is owing to the powers they possess of transferring the irritation to some other point, and not to their stimulating operation as alleged by many.

We also find a very interesting discourse on prognostics, which abounds with useful instruction, and displays much critical reflection. The work, finally, concludes with some observations relative to clinical instruction, in which the author draws a comparison between the system adopted in Italy, and that pursued at Edinburgh. The result of his observations inclines him to give the preference to the clinical schools of his own country. Dr. Clarke, however, a distinguished English physician, at that time resident at Rome, took up the cudgels for his "alma mater," and discussed the question of superiority at some length with the Italian professor.

We must now bring these remarks to a close, not however, without stating, that we have been pleased and instructed by the work which we have announced to our readers. Although we are not willing to give full credence to all the items in the doctrinal code of the Italian school, we cheerfully acknowledge our good opinion of many of them. The system has not, however, been sufficiently expounded, at least we have not yet met with any exposition of its principles, which we considered as altogether satisfactory. The work of Rasori has not reached us, and that of Professor Tommasini, on diathesis, announced some time ago, if published, has not yet come to hand. We think it would prove a valuable acquisition to those who are anxious to become conversant with the principles which it proposes to elucidate. E. G.

XXI. *Medico-Chirurgical Transactions.* Published by the Medical and Chirurgical Society of London. Vol. XVI. Pt. I. London, 1830, pp. 235, Pl. II.

This volume, in the value of its contents, is equal to any of its predecessors. It comprises thirteen articles, most of them highly interesting. The initial article is an account of a "case of aneurism of the external iliac artery, for which the femoral artery and subsequently the aorta were tied, by J. H. James, Esq. Surgeon to the Devon and Exeter Hospital"

The subject of this case was a man aged forty-four, of rather spare habit, but not otherwise unhealthy appearance, who had been ill for four months, and was admitted into the Devon and Exeter Hospital, May 7, 1829. The patient was supposed to be affected with diseased hip-joint, and was treated accordingly. After he had been a month in the hospital, Mr James remarked a tumour in the abdomen, above Poupart's ligament, which did not rise at the pulsations, but when firmly pressed, part of its contents could be emptied, and when the pressure was removed, the blood returned with throbbing; no pulsation was perceptible in the groin or ham; there was slight numbness and much pain in the knee. This tumour increased so fast, that in the beginning of June it occupied the whole of the iliac region, and projected the lower part of the abdomen considerably. The man's constitution was not impaired by hard living, the pulsation of the heart and arteries indicated no aneurismal diathesis, and he could assign no probable cause for the production of this disease. Mr. James determined to perform the operation of Brasdor, revived by Mr. Wardrop, and accordingly, on the 2d of June he tied the artery, about half an inch below Poupart's ligament. During the two days following the operation there was a decided diminution of the tumour, after which it began to increase, and on the 24th of June the integuments had become tense and shining—there was considerable pain—and the health, which had hitherto not been much disturbed, now evidently suffered. After this the tumour increased fast in all its dimensions, the integuments soon became dusky red and œdematous, and it was evident that sloughing could not be remote; at the same time the increase of the tumour towards the umbilicus rendered it imperative to take some step without delay, at least if any thing could be done for the relief of the patient. There being no prospect of a spontaneous cure, Mr. James resolved, as the only chance of relief, to tie the aorta, as was done by Sir Astley Cooper, in a similar case to the present. This operation was performed on the 5th of July. An incision was made, beginning an inch above the umbilicus, and continuing two inches below. The linea alba was scratched through below the umbilicus, and the peritoneum was then divided nearly to the same extent as the external wound. The vessels of the integuments bled copiously. As soon as the division of the parietes was effected, the viscera protruded, and the operator was embarrassed with almost the whole of the bowels, nearly all the colon and a great part of the small intestines being pushed out, and presently quite distended with flatus. The aorta was found without difficulty, pulsating strongly, but it was surrounded with dense cellular membrane, and had a strong peritoneal covering. Mr. James here found it difficult to force the nail and finger between the aorta and spine. He therefore cautiously introduced the point of the aneurismal needle, but when it reached the other side it broke at the handle. The broken part was so sharp that it was necessary to withdraw it. With some difficulty the operator got his finger with Weiss's instrument upon it under the artery. The ligature was then with the proper precautions drawn tight, the tumour became flaccid, and the patient complained of deadness in the lower extremities. The ligature was cut close. The intestines were not without difficulty replaced, the wound secured by the quill suture, large straps and a bandage. The patient suffered much during the operation, was at times very faint, but he revived after the operation; he complained of great pain in both the lower limbs, which on the aneurismal side soon increased to agony, and continued unabated until his death. The temperature of the limbs were maintained as much as that of the trunk, but it fell in both, and he expired three hours and a half after the operation.

On dissection the ligature was found to have been firmly applied to the aorta, five lines below the inferior mesenteric artery, and eleven above the bifurcation of the common iliacs. The ligature included some very dense cellular membrane, and a small vein which was traced along the coats of the aorta, but no other parts. The aneurismal tumour was of enormous size, extending from the upper part of the thigh to the side of the vertebral column, and filling the whole of the ilium. It projected on one side far into the pelvis, and on the other occupied the lower part of the abdomen. The ilium on which it rested was perfectly bare and scabrous, and absorbed nearly through to the acetabulum. The cause of the failure of the first operation was now discovered. The external iliac did not terminate in the common femoral as usual, but gave off two trunks of nearly equal size, and from the inner, which corresponded with the profunda, the epigastric was given off. The ligature had been applied to the superficial femoral, rather more than half an inch below a point which corresponded with the situation of the epigastric. At the point of ligature, the artery was completely obliterated, but there remained a free outlet from the lower part of the sac by means of the profunda

Mr. James remarks that he should have preferred in the second operation to have placed the ligature round the common iliac instead of the aorta, and it was on this account that he made the chief part of his incision below the umbilicus, which gave him the power of proceeding either way, as circumstances might permit. The difficulties, however, which arose from the protrusion of the intestines and the immense elevation of the tumour, prevented him from commanding the common iliac in such a way as would have enabled him to tie it with safety in a reasonable time. Mr. James was deterred from attempting the operation from the side of the abdomen, in the way Dr. Stevens and Mr. Atkinson tied the internal iliac, from the fear of peritoneal adhesions, which was on dissection found to be too well founded.

The second paper is an account of the removal of a medullary sarcomatous tumour from the cheek of a woman aged forty-four, by **James Barlow**, Esq. Surgeon, Blackburn, Lancashire. This tumour had made its appearance upwards of ten years previously, after accidentally biting the mucous membrane of the mouth, which incident produced a small painful swelling on the part, which progressively increased. At the time of the operation, the tumour "extended anteriorly from the inferior edge of the right orbit down the cheek, hung pendulous over the contour of the lower jaw, and laterally from the angle of the mouth to near the tragus of the ear, and was remarkably prominent exteriorly." At one period of its growth it pressed so much inwards on the gums, that mastication was accomplished with difficulty, insomuch that she submitted to have all the molar teeth extracted from each jaw. The tumour was slightly moveable, tense, rather elastic, and adherent posteriorly to the mucous membrane of the mouth. The integuments of the cheek were very thin, and presented a pale glossy aspect, and the main surface of the tumour was covered with a net-work of varicose veins. The neighbouring glands were not affected. The facial artery pulsated actively on that part where it passes over the lower jaw.

Various surgeons had been consulted, who advised against any operation, but as the woman was very desirous that an operation should be performed, and her general health appeared favourable, Mr. Barlow consented to operate, which he did on the 12th of May. The patient was seated in a chair, her head inclining on the breast of an assistant, and the operation commenced by two incisions at the upper part of the tumour, a little below the orbit, and extending downwards to near the basis of the lower jaw, meeting superiorly and inferiorly and including in the elipsis the most prominent part of the tumour. On attempting to dissect out the diseased mass from the adhering integuments, a profuse hæmorrhage followed each cut of the scalpel, and a sudden and death-like syncope seized the patient, which continued for the space of several minutes, accompanied with a feeble tremulous pulse, cold sweats, ghastly countenance, and suspended respiration. The knife was now laid aside, and the elliptical portion of the tumour instantly and firmly grasped between the ends of the fingers, by which manœuvre the bleeding was repressed, and the woman gradually revived. Much blood, both venous and arterial, was necessarily lost during this stage of the operation.

The dissection was then resumed by separating the skin and cellular tissue from the tumour, and to avoid making any opening through the membranous septa of the mouth, the cutting edge of the knife was directed towards the diseased substance, and its whole circumference detached from its extensive adhesions, by drawing it forwards with the fingers of the left hand, whilst the scalpel was employed by the other in completely removing the tumour from its basis. After which, the state of the mouth was examined, by passing thereinto the finger of one hand, and another, of the other into the wound, where the parting membrane was found scarcely to exceed one line in thickness, from the edge of the masseter muscle to near the angle of the mouth; and though the parotid duct was fully exposed in the operation, it escaped being wounded with the knife, or its functions in any respect obstructed.

After securing several arteries with ligatures, which bled freely, the integuments were brought into opposition, and retained by a few sutures, leaving a small opening at the bottom for an outlet to any accumulation of fluid which might collect during the healing of the wound; some shreds of adhesive plaster were then placed between each suture, and a pledget of lint spread with cerate applied thereon, over which a suitable bandage was several times turned to secure the whole.

Little or no constitutional disturbance took place during the healing of the wound, and the woman was completely cured in three weeks, without contortion or paralysis.

Appended to this case, is another which occurred more than thirty years ago, in which sudden death was caused by the entrance of air into a vein during the extirpation of a tumour from the neck.

Next follows a case of ununited fracture of the thigh bone, cured by the application of a silver wire between the fractured extremities, by Dr. Sommé, principal surgeon and professor in the Civil Hospital of Antwerp. The patient was a healthy subject, about thirty years of age. The want of union was attributed to the restlessness of the patient. Five months having elapsed without union taking place, Dr. Sommé determined upon the following operation, analogous to the seton, but exciting inflammation upon a larger surface. This was performed on the 12th of August; we quote the author's own description of the operation:—

> "The patient being placed on his back and supported, I passed a long trocar and cannula at first downwards on the inside of the upper fragment, and made it pierce the skin behind, and a little to the outside; the trocar was then withdrawn, and a silver wire passed through the cannula, and out at the posterior opening. The cannula was then withdrawn, and being replaced on the trocar, they were introduced again above and on the outside of the lower fragment, and made to pass out at the same opening behind. The trocar having been removed, the other end of the wire was passed through the cannula, so that both ends were in contact behind, leaving a loop in front. I then made an incision in front, from one orifice to the other made by the trocar, and drawing the extremities of the wire through the wound, brought the loop between the fractured ends of the bone, and approximated the edges of the skin with sticking plaster."

The limb was confined in a wooden box, sufficiently long to contain the leg and thigh, and so narrow as to serve the purpose of splints. At each dressing the wire was drawn down so as to depress the loop more and more into the flesh. The anterior wound which had been made for the introduction of the loop, cicatrised in about fifteen days; the posterior wound afforded but a trifling suppuration.

Six weeks after the operation the union was distinct; on the 2d of October, Dr. S. divided one end of the loop near the edge of the wound, and drawing down the other, removed it completely; the loop had not quite divided the parts which it encircled. The patient now supports himself on the thigh, without any pain; and what is remarkable, is that there is no apparent shortening of the limb.

In the succeeding paper, we are furnished with an account of a concrete oil existing as a constituent principle of healthy blood, by **Benjamin B. Babington, M.D.**

Mr. Hewson supposed oil to exist in milky serum—this was positively denied by Mr. Hunter, but the fact of its existence was a few years ago proved by Dr. Traill of Liverpool, and more recently it was obtained in a separate state by Dr. Christison. Dr. Babington has shown that it not only exists in milky serum, but is constantly present in the healthy blood of man and other animals.

This oil is obtained from the serum of healthy blood, whether that serum be milky, opalescent or clear, and appears to be the chief, if not the only cause, of the colour of healthy serum. It is of deep yellow hue, is semi-solid, and melts at a temperature of 90° Fahr. It is lighter than water, its specific gravity being .918. From its solution in ether, it crystallizes by very slow evaporation, at a low temperature, in radiated tufts. It burns with a brilliant light, has a faint peculiar odour, resembling that of a wet bladder; forms soap with the alkalies, and in its general characters resembles other animal oils. It is uniform in colour, in general appearance, and in all its properties, from whatever kind of serum it be obtained. The only method by which Dr. Babington has succeeded in separating it from clear healthy serum, is by agitation with æther, though from milky serum, in which it abounds, it may be obtained by means of alcohol, or by simple evaporation. About one-third part of æther should be added to the serum, in a well-corked phial, which should then be reversed a few times, without violent agitation. This movement should be repeated twice or thrice, at intervals of a day or two, when after a final rest of some hours, the æther will be found to have risen to the top of the liquid, and to have acquired by impregnation with oil, a yellow colour of more or less depth, according to the proportion of oil which the serum may have contained. By means of a glass syringe, the æthereal solution may be collected from the surface of the serum, and on evaporation will yield the material in question, together with a small quantity of albumen, which the æther has taken up, and which may be easily separated by a heat sufficient to coagulate it. By a more violent agitation of the æther and the serum, an imperfect coagulation of the latter generally takes place, which in that state entangles the æther so as to prevent its separation.

In proving the presence of oil in the blood, Dr. Babington has established an important fact, and one which will elucidate many hitherto obscure phenomena.

The fifth article is an account of a case of phlegmasia dolens, caused by inflammation of the veins of the lower extremity, excited by malignant ulcer of the cervix uteri, by Wm. Lawrence, Esq. and then follows two cases of extensive inflammation and obstruction of the veins of the extremity, accompanied by a swollen state of the limb—the subject of the first, a phthisical youth, of the second a female, by T. H. Holberton, Esq. Inflammation of the veins has been lately attracting so much attention that we propose devoting a special article to the subject, on an early occasion, and we shall therefore postpone a notice of these cases until that time.

Art. VII. History of a case of stammering, successfully treated by the long-continued use of cathartics, by John Bostock, M. D. The subject of this case was a boy of a robust form, and florid aspect, of a healthy constitution, and more than ordinary activity, both of body and mind. When between two and three years old, and after having acquired considerable readiness in speaking, he was suddenly affected with so great a degree of stammering as to be almost incapable of uttering a single syllable. Two physicians were consulted, who were unable to propose any specific plan of treatment which might afford a prospect of success, but in consequence of a somewhat plethoric state of the child, they advised that a strong purgative should be given. The effect of this medicine was so favourable, that it was repeated three or four times, and always with decided benefit. The complaint, however, shortly recurred, was attacked with the same remedy, and was again subdued. After this, in addition to the purgative plan, a sparing vegetable diet was recommended, and animal food totally abstained from. By a steady adherence to this discipline, for about eight years, the complaint was kept at bay, but whenever any relaxation in the diet took place, or when the purgatives were omitted or too long delayed, symptoms of the impediment immediately appeared. At length, when about twelve years of age, the tendency seemed so far subdued, that a relaxation of the restrictions was not followed by the usual unfavourable consequences; and the boy being then at a public school, it was not so easy to maintain the former discipline. For some time no bad effects ensued, but at length the complaint recurred, and was unusually obstinate, so as to require a long and severe course of purgatives, which was, however, finally successful. During the last two years, the tendency occasionally manifested itself, but it has always been easily removed by a moderate use of purgatives, and by a temperate, though not a rigidly abstemious diet. The boy, who is now in his fifteenth year, may be said to be free from the complaint. He even possesses a considerable rapidity and volubility of enunciation.

Any purgative was found to answer in this case which freely evacuated the bowels. The fæces were, during the attack, in a morbid state, and the necessity of continuing the medicine was judged of as much by the appearance of the fæces as by the state of the symptoms.

Art. VIII. is on the pathology of hooping-cough, by James Alderson, M. D. &c. Four cases of pertussis are related, with the post mortem examinations. In all these cases there was no evidence of pleuritic affection—the structure of the lower and posterior portions of the lungs was very firm and dense—the portions which were the subject of this change, exactly defined by the septa, of a dull red colour, devoid of air, sinking instantly in water—and their slices undergoing no change by ablution. The individual lobules were more dense than in hepatized lungs, and the cellular membrane between them retaining its natural structure, conveyed to the touch the same sensation that is felt on handling the pancreas; the upper portions of the lungs were spongy and crepitant, but little air, however, could be expelled by the bronchial tubes. Most of the smaller tubes were filled with a thick secretion, in one of the cases with false membrane, in all of them the divisions of the tubes were somewhat dilated. Mr. A. has left much to be elucidated in relation to the pathology of this disease.

Art. IX. is a further inquiry into the comparative infrequency of calculous diseases among sea-faring people, with some observations on their frequency in Scotland, by Alex. Copland Hutchinson, F. R. S. &c. &c. In a paper in the ninth volume of the Transactions, Mr. Hutchinson drew the attention of the public to the comparative infrequency of urinary calculi in sea-faring people; his further investigations, the results of which are given in the first part of this paper, are confirmatory of his previous observations. It appears that there were employed in the British naval service, as seamen, marines, and boys, from the 1st of Jan. 1816, to the 1st of Jan. 1829, 331,000 individuals. Of the above population, during the period stated, there were admitted into the only two naval hospitals kept open during these years, 21,910 patients of all descriptions, and extraordinary as it may appear, there has not occurred in the whole number of officers, men, and boys employed in the British Navy, *one* case of stone, from the 1st of Jan. 1816, to the 1st of Jan. 1829.

It further appears, from the inquiries of Mr. H. that calculous affections are more prevalent in Scotland than in England; occurring in the former in the proportion of 1 in 83,300, though only cases observed in the principal towns are included in the calculation—whilst in England, according to Dr. Yelloly's statement, it is only 1 in 108,000.

The succeeding article by GEORGE LANGSTAFF, Esq. entitled "Practical Observations on the Healthy and Morbid Conditions of Stumps," will hardly admit of analysis. It consists chiefly of descriptions of a number of preparations in the author's museum, with the histories of the individuals from whom they were taken.

Art. XI is a case of aneurism of the external iliac artery, in which a ligature was applied to the common iliac artery, by PHILIP CRAMPTON, M. D. &c. The merit of being the first to tie the common iliac artery is due to our able colleague, Dr. Mott—the only one we believe who has imitated this operation is Dr. Crampton, whose case we proceed to notice. The patient was a soldier, aged thirty, with a pulsating tumour extending from about three inches below the crural arch on the right side, to within about three inches of the umbilicus. The tumour was divided, by a furrow in the line of Poupart's ligament, into two portions There was also a pulsating tumour about the size of a pullet's egg in the right ham. He had much pain, so as to prevent him from walking. He attributes his disease to a fall received in wrestling about four months before. He was prepared for the operation by several bleedings, low diet, daily purging, and the digitalis. On the 18th of July, being considered in a favourable state, the operation was performed by Mr. Crampton, and as his mode differed from that adopted by Dr. Mott, we shall give the details of the operation.

> "The first incision commenced at the anterior extremity of the last false rib, proceeding directly downwards to the os ilium; it followed the line of the crista ilii, keeping a very little within its inner margin, until it terminated at the superior anterior spinous process of that bone; the incision was therefore chiefly curvilinear, the concavity looking towards the navel. The abdominal muscles were then divided to the extent of about an inch, close to the superior anterior spinous process, down to the peritoneum, into this wound the forefinger of the left hand was introduced, and passed slowly and cautiously along the line of the crista ilii, separating the peritoneum from the fascia iliaca, the peritoneum touching the fore part, and the fascia iliaca the back part of the finger. A probe-pointed bistoury was now passed along the finger to its extremity, and by raising the heel of the knife, while its point rested firmly on the end of the finger as on a fulcrum, the abdominal muscles were separated from their attachments to the crista ilii by a single stroke. By repeating this manœuvre, the wound was prolonged until sufficient room was obtained to pass down the hand between the peritoneum and the fascia iliaca. Detaching the very slight connexions which these parts have with each other, I was able to raise up the peritoneal sac with its contained intestines on the palm of my hand, from the psoas magnus and iliacus internus muscles, and thus obtain a distinct view of all the important parts beneath; and assuredly a more striking view has seldom been presented to the eye of the surgeon; the parts were unobscured by a single drop of blood; there lay the great iliac artery, nearly as large as my finger, beating awfully at the rate of 120 in a minute; its yellowish-white coat contrasting strongly with the dark blue of the iliac vein, which lay beside it, and seemed nearly double its size; the ureter in its course to the bladder lay like a white tape across the artery, but in the process of separating the peritoneum, it was raised from it with that membrane to which it remained attached. The fulness

of the iliac vein seemed to vary from time to time, now appearing to rise above the level of the artery, and now to subside below it. Nothing could be more easy than to pass a ligature round an artery so situated. The forefinger of the left hand was passed under the artery, which, with a little management, was easily separated from the vein; and on the finger, (which served as a guide,) a common-eyed probe, furnished with a ligature of moistened catgut, was passed under the vessel. A surgeon's knot was made in the ligature, and the noose gradually closed, until Mr. Colles, who held his hand pressed upon the tumour, announced that 'all pulsation had ceased!' A second knot was then made, and one end of the ligature cut off short. On examining the vessel after it had been tied, it was found to be full, and throbbing above the ligature, but empty and motionless below it. The external wound was united by three or four points of suture, and supported by long straps of adhesive plaster. The operation was completed in twenty-two minutes; the patient, who was a firm minded man, made no complaint during the operation, not even when the ligature was closed upon the artery. The tumour, immediately after the operation, was diminished nearly one-third, the diminution being confined to the abdominal portion; ten minutes after the operation the pulse was 96; at 7 P. M. Mr. Stringer finding the pulse full and bounding, took twenty ounces of blood from the arm; at 10 P. M. I found him tranquil, no pain, pulse 88; the limb, with the exception of the toes, warm; saphena vein full; additional flannel was wrapped round the foot."

The patient appeared to be doing well, except that an obscure pulsation was perceived on the second day after the operation, which afterwards became more distinct. On the eighth day the ligature came away, but was lost in the bed.

On the tenth day the wound was quite healed, with the exception of about an inch, the pulsation in the tumour was nearly as strong as before the operation, but there was no pulsation in the femoral artery below the crural arch; the whole bulk of the tumour was reduced one-half. In the evening, while sitting up in his bed taking some gruel, the blood suddenly gushed from the wound, and deluged the bed. He fell backwards, and expired in less than a minute.

Dissection.—The common iliac, at about three-fourths of an inch from the bifurcation of the aorta, was lost in an oblong tumour, about three-fourths of an inch in diameter, and one and a half in length; the tumour terminated upon, but did not communicate with, the aneurismal sac. On cutting into the tumour, about half an ounce of greenish pus flowed from the wound, and discovered the artery, which appeared somewhat contracted at one part, and its coats deeply indented, but not cut through, marking the place where the ligature had been applied. On blowing into the iliac artery from above, bubbles of air escaped freely from the external wound from whence the blood had issued; water injected by a syringe escaped by the same passage, clearly establishing the important fact, that the ligature, which was of catgut, had been dissolved by the heat and moisture of the wound, and thrown off, before the obstruction of the artery, or the coagulation of the blood in the aneurismal sac, had been completed. It further appeared that the dissolution of the ligature had caused a small abscess to form in the place which it occupied. On slitting up the artery, the internal and middle coats were found to be completely divided in the whole circumference of the vessel, and small portions of lymph adhered to its internal surface. The popliteal aneurism was far advanced towards a cure; the contents of the sac were quite solid, and the tumour was reduced to about the size of a walnut: the artery, for six inches above the sac, was filled with a firm coagulum.

Dr. Crampton observes, that by the manner of operating adopted by him in the preceding case, the tying the common iliac artery is not only a feasible but an exceedingly easy operation. The difficulties which Dr. Mott encountered, he thinks, were owing to his incision having been made too low.

> "This, in the first place," says Dr. C. "brought him in contact with the aneurismal tumour, from which he was obliged, with great labour, and considerable risk, to detach the peritoneum; then he had the whole mass of the tumour between him and the artery which he was to tie: and lastly, he had the intestines pressing down upon him, and producing such a complication of difficulties, as I believe few men but himself could have encountered with success."

The next article is on the glanders in the human subject, by JOHN ELLIOTSON, M. D. &c. The author in this highly interesting paper establishes the fact of glanders being communicable by infection to the human subject; he relates two cases of this disease treated in St. Thomas's Hospital, adds one case which occurred in Ireland, another communicated to him by Mr. Parrott of Clapham, two from Mr. Travers's work on Irritation,* and three cases from German Journals; some extracts are also given descriptive of the disease in the horse.

We shall relate one of the cases treated in St. Thomas's Hospital. A boy aged seventeen, was admitted March 19th, 1829., Had been attacked twelve days previously by pain in the right hypochondrium, extending up the chest, dyspnœa, and rigors, which disappeared next day, but recurred on the day following, and disappeared again by the end of the week, under the use of leeches and purgatives. Five days before his admission, a pimple appeared upon the right side of the nose, which increased and suppurated, and the surrounding parts swelled and grew red. On admission, the upper half of the face, including the eyelids and the nose, with the portion of the cheek on each side, especially on the right, was greatly tumefied, so that the eyes were closed. The eyelids and swollen portions of the cheeks were red and hot, dry and shining, but the nose was dark-coloured, and on its right half, black, cold, and senseless. From around the gangrened portion of the nose and some other points a little pus was oozing, as well as a thin, dark-coloured fluid, and *from the nostrils a thick discharge of a deep yellow colour, here and there a little bloody, was taking place,* exceedingly copious from the *right* nostril. Several *hard* phlyzacious pustules existed on and immediately around the nose, still principally on the right side, and in various parts of the trunk and extremities. Tumefactions were observed in both forearms and in the back of the right hand. Some of these were hard, others softening into suppuration. The temperature was high; the pulse 136, and sharp; the tongue white and rather dry. The respiratory murmur was indistinct at the right lower part of the chest, and the respiration quick and difficult. The gums were slightly turgid. Fourteen ounces of blood were taken from the arm and became both buffed and cupped. Some of the tumefactions were cut into, and large quantities of pus discharged. Lint soaked in a solution of the chloride of soda, and covered with a poultice of stale beer grounds, was applied over the nose fresh every hour, and a common poultice to the abscesses which had been opened. An ounce of castor oil was given, and the diet restricted to slops, milk, and arrow-root.

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* Mr. Travers was not aware that these were cases of glanders.

"Late in the evening two greenish and very offensive stools were passed involuntarily, and a little delirium was observed. Tumefactions had begun on both legs, one upon the left hand, and one upon the right elbow. The next morning more tumefactions were seen upon the extremities, red as all the others had been but the others had now acquired a purple tint, and the wounds looked dark. The forehead was swollen and red, and more pustules had formed upon the face. There was constant agitation, frequent delirium, profuse diarrhœa, and there had been no sleep. Mistura cretæ composita was prescribed, sixteen leeches applied to the temples, and strong beef tea added to the diet.

"In the evening the diarrhœa was checked, but the upper lip had grown very dark, sordes encrusted the teeth, the surface, still hot, was covered by a profuse sweat, and many new hard pustules were seen upon the trunk and extremities. The pulse had become soft, and was small and rapid. Twenty-five minims of tinctura opii was given in the first dose of the mistura cretæ composita, and one grain of the sulphas quinæ every four hours prescribed. The oleum terebinthinæ was substituted for the solution of the chloride of soda.

"He was calm after taking the opium, but about four o'clock in the morning was observed to breathe with more difficulty, to be unable to swallow, and to be constantly delirious, and from that time he sank gradually, and expired at six.

"I was not present at the inspection, but understand that there were proofs of a violent pleuro-pneumonia in the lower part of the right side, and that two ounces of healthy pus was found between the adherent lung and diaphragm. A dark red patch existed in the stomach, and several at irregular distances throughout the intestines.* The mucous membrane of the stomach was very lacerable at that spot. The other viscera, and all the contents of the head as well as the veins of the extremities, were reported healthy but the mucous membrane of the nostrils was not examined. The abscess which had been opened in the back of the right hand, communicated with the joint of the metacarpal bone of the middle finger, but those on the arm did not communicate with the elbow."

The head was not allowed to be examined in this case, but in another case in which a full investigation was made, a cluster of tubercles was found in the cellular membrane exterior to the pericranium of the left superciliary ridge, and in the right frontal sinus, exactly similar to those observed in the frontal and other sinuses of the horse after acute glanders.

The concluding article is an account of the dissection of the parts concerned in aneurism, for the cure of which Dr. Stevens tied the internal iliac artery, at Santa Cruz, in the year 1812, by Richard Owen, Surgeon. We noticed in our last number that Mr. Lawrence has expressed some doubts of Dr. Stevens having actually applied the ligature to the internal iliac—all doubt has now been dissipated by an examination of the preparation. Sir Astley Cooper on receiving it, addressed the following note to Dr. Stevens.

"Dear Sir—I have examined your preparation in the presence of Mr. Clift and Mr. Owen, and am perfectly satisfied of the existence of the aneurism for which you operated, and of the obliteration of the internal iliac artery which you tied."

The artery was found to be entirely obliterated for the space of an inch where the ligature had been applied, but to retain its natural diameter for half an inch above its division. The obturator artery, which arose from the upper part of this pervious portion, was, as well as the ischiatic, entirely obliterated, but the sacro-lateral artery was pervious, of the size of a crow-quill, and passed inwards to the sacral foramen, whilst the glutæal artery of its natural size, received close to its origin, two vessels as large as the preceding, given off from the sacro-lateral artery, near the third and fourth foramina of the left side, the anastomoses of the sacro-lateral arteries with each other and the sacra-media, were large and tortuous.

The operation of tying the internal iliac has now been performed five times. First, by Mr Stevens—second, by Mr. Atkinson, of York—third, by a surgeon in Russia—fourth, by Mr. Thomas, of Barbadoes—and fifth, by Dr. Pomeroy White, of Hudson, New York. An account of this last case will be found in the first volume of this Journal, p. 304.

XXII. *Elements of Chemistry, including the recent Discoveries and Doctrines of the Science.* By Edward Turner, M. D., F. R. S. E. Professor of Chemistry in the University of London, &c. Third American, from the Second London edition, with notes and emendations. By Franklin Bache, M. D. Philadelphia, 1830. pp. 578.

Next to the satisfaction of having written a deservedly popular treatise on chemistry, may be ranked that of having one's book revised and edited by a skilful and learned chemist as accurate and pains-taking as Dr. Bache. Nothing short of actual examination would have convinced us that so well printed and creditable a work as the second English edition of Dr. Turner's elements could be so vastly improved as it has been. Dr. Bache has examined every statement and figure in the original, corrected slips of the pen and errors of the press, given symmetry to the whole work, and increased its value by judicious notes, containing either additional facts, corrected statements, or sensible criticism. The author is certainly under great obligations to his editor for the labour which he has bestowed on his undertaking, and we do not doubt that the text of this edition will be resorted to as the standard in any future reprint of the work in England. We can confidently recommend the elements of Dr. Turner as the most concise, yet copious, accurate, and perspicuous, popular treatise on chemistry in our language. The science has grown to its present extent and importance so rapidly and recently, that scientific men, who do not devote themselves to the study, and keep pace with the news of the month, find themselves continually at fault in the midst of unknown terms and new theories. It is therefore of no small importance, and especially to physicians, to be in possession of a clear and succinct account of the present state of the science, which shall enable them to profit by the intelligence of the day. The book before us is, we think, particularly suited for this purpose. Dr. Turner's expositions of chemical theory are in general sound and lucid, and his language is neat and perspicuous. The reader will find the doctrine of definite proportions, the corner stone of modern chemistry, laid down with great clearness, and if he is beginning to grow rusty in his knowledge of the science, cannot do better than to make himself master of this theory. He will thus do more to facilitate his future studies than by any other means. One of the most striking changes in the aspect of chemical science, to one who has not watched its progress for some years, is the great accession to the list of elementary bodies. An entirely new class of substances, chlorine, iodine, and bromine, so closely allied in their properties as to encourage the hope that they will yield to analysis, has confounded all our former learning, and degraded the oxygen of Lavoisier to a secondary rank. But it is in organic chemistry, that the most interesting researches to our profession, have been made. The discovery of the vegetable alkalies bids fair to revolutionize the whole science of pharmacy. A physician can now carry a bale of bark in his pocket, and a pound of opium in an ounce vial. Should future researches be as well rewarded as those of Sertuerner and Robiquet, of Pelletier and Caventon, we may hope in the same manner to concentrate all the most valuable remedies of the vegetable kingdom, and thus preserve them from change and decay. It is in this manner that the men of different professions are continually advancing the interests of each other, and there is no one science to which the physician is under deeper obligations, for the assistance which it has rendered the healing art, than to chemistry. To be ignorant of [illegible]emistry sho[illegible] almost as great a reproa[illegible]d with anatomy itself.

XXIII. *Observations on the Blood.* By WILLIAM STEVENS, M. D. &c. &c. Read at the Royal College of Physicians May 3d, 1830. London, 1830, pp. 12, 8vo.

It would be a work of supererogation to descant, at the present day, on the absurdities of the old humoral pathology. No one, so far as we know, having any claims to authority, now raises a voice in its defence—so signal and complete has been its overthrow. But there is perhaps no hypothesis, however absurd, which does not rest upon some facts, and it may be questioned, whether the adversaries of this system have not been over-zealous in declaring against it a war of extermination, and in refusing to save from its wreck any of the material of which it was constructed. It is exceedingly natural that in their zeal to overcome a doctrine which exercised for nearly thirteen hundred years so pernicious an influence upon our science, that nothing should satisfy the opponents of humoralism except its total overthrow—but the ardour of discussion has now ceased, the evils of that doctrine are only very remotely felt, and we may therefore form an impartial judgment respecting it, and should preserve such of its materials as possess value, from the destruction which has overwhelmed the structure itself.

The solids unquestionably perform the most important role in the living economy, and their physiological function and pathological condition merit the most especial attention but do the solids constitute the whole of the living system? are they not pervaded through every part by a vital fluid? are not the solids constructed out of the materials of this fluid, and do they not return again to it, their effete materials? Is it not reasonable then to believe that this fluid, circulating through every portion of the solids, conveying every where the materials for their reparation, and receiving into its current the materials which have subserved their office in the economy, should become changed by derangement of the organs by which it is elaborated, variation in the materials of which it is formed, or cessation of the functions by which its useless materials are eliminated. It must be confessed that this does take place, and that this fluid when so altered must produce an effect upon the solids through which it circulates. The precise nature of these changes in the blood, and the effects they produce upon the solids, are, it is true, not yet known. But if this ignorance is in some degree owing to the inherent difficulties of the subject, it must be admitted, that still more is due to want of attention to its investigation. With the aid, however, of modern chemistry, and the more perfect means of analysis it affords, much might be expected from a well-directed series of the researches, and we know of no subject, the investigation of which promises more important results to medicine, or more imperishable fame to the successful inquirer.

The attention of pathologists has been awakened to this subject. Dr Reid Clanny, of Sunderland, has proved by means of a very ingenious apparatus, that in typhus a marked alteration takes place in the blood.

The Medical Society of Paris, in December, 18[illegible], proposed, as the subject of a prize dissertation, the determination of the alterations of the blood in disease. Two memoirs were offered, neither of which obtained the prize—though they have been judged worthy of being printed in the Transactions of the Society, and medals of encouragement have been awarded to their authors. The Society have again offered a prize for the successful elucidation of this question.

The founder of physiological medicine in one of the last numbers of his Journal that has reached us, has also strongly urged the investigation of this subject. He observes, "It is time that we should seek what part the fluids perform in the production of diseases. It is time that we should endeavour to solve this question, always environed with difficulties, and far from being as yet elucidated by pathological facts."*

Dr. William Stevens, of Santa Cruz, well known to the profession as having been the first who had the boldness and skill to apply a ligature to the internal iliac artery, has devoted much attention to the investigation of the changes of the blood, especially in fevers. The result of his observations he intends shortly to lay before the profession, and we have no doubt, from the information we have had the pleasure of deriving from him during his recent visit to this country, and the zeal and good faith with which he appears to have conducted his experiments, that much interesting information may be expected from his work.

The small memoir, the title of which is prefixed to this notice, was read to the College of Physicians of London, and contains merely a summary of his results, without any of the facts or observations upon which they are founded. It would be impossible then to form any estimate of the accuracy or incorrectness of these results. It may be interesting, however, to our readers to know what the author intends to prove, and we shall therefore give an analysis of his memoir, and when his large work appears, we shall not fail to submit an account of it to our readers.

Dr. Stevens says that there is sometimes met with in the West Indies a malignant form of yellow fever, in which there is no excitement in the commencement sufficient to injure the solids, and death is produced by a change of the blood, which has become dissolved, nearly as thin as water, almost as black as ink, and totally incapable of either stimulating the heart, or supporting life. In both cavities of the heart the fluid is equally black, and in the whole vascular system, all distinction between arterial and venous blood is lost. A close attention to some of these cases led him to believe "that the blood was more concerned as a *cause*" *of fever* than is generally supposed, and induced him to institute some experiments to ascertain the nature, cause, and effects of the changes in the blood

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* Ann. de Med. Phys. July, 1830, p. 108.

"On examining, soon after death, the black and dissolved blood that had been taken from the heart of those who had died of the yellow fever, it was very evident, even at first sight, that several great changes had taken place.

"*1st.* The blood was more fluid than natural, partly from an excess of serum, probably produced by a stoppage of the secretions, and the retention of those fluids in the system, which ought to have been thrown out by the secreting organs. In the first stage of the disease, the structure of the red globules is frequently deranged, which is evident from the fact, that in those fevers, the colouring matter is often detached from the globules, and dissolved in the serum, giving to that part of the blood, when it separates from the fibrin, a bright scarlet colour, and this colouring matter cannot be separated from the serum, either by filtration, or any other mechanical means; but as the disease advances, this red colour is lost, and the whole circulating current becomes black, and so thin that it has no longer any resemblance to the blood of health.

"*2d* The colour of the whole mass of blood, both in the arteries and veins, was changed from its natural scarlet or modena red, to a dark black. I have frequently filled one glass with the black fluid taken from the heart, and another with the black vomit taken from the stomach. They were both so unlike the blood of health, and resembling each other so completely, that it was almost impossible to distinguish the one from the other, and from its appearance it was very evident that such diseased blood could no more stimulate the heart or support life in the solids, than putrid water can nourish vegetables, or carbonic acid gas support respiration

"*3d.* In violent continued fevers, the saline matter, like the fibrin, appears to be exhausted faster than it enters the circulation; the blood soon loses a great proportion of its saline impregnation, it loses entirely its saline taste, and we shall afterwards see that the black colour is a certain proof of the entire loss, or at least of the great diminution of the saline matter.

"*4th.* The blood, though dissolved, was not yet putrid, for the blood is so essential to life, that putrefaction of this fluid cannot exist in a living body. But dissolution is the first step towards putrefaction, and when this to a certain degree takes place, death of all the solids must follow.

"The dissolved state of the blood," says Dr. S. "is the *effect* and *not the cause* of fever. But as it was evident in many of the fatal cases, that this dissolution was the sole cause of death, it then became an object of importance to find out some agent capable of preventing this fatal change in the whole circulatory current. This agent Dr. S. conceives to be saline matter." Saline matter, says Dr. S. "is invariably found in healthy blood, and the presence of this seems actually necessary to its healthy state; for, when it is lost in disease, the vital fluid goes fast to decay. As this saline matter was lost or greatly diminished in the blood that had been dissolved in bad fever, and as the loss of this was probably the chief cause of the mortality, I was induced to try the effects of the saline medicines in preventing the bad symptoms that are so generally met with in the fevers of hot climates; and, after having used several of the saline medicines in a great number of cases, I was completely convinced that those agents had, when used at a proper period of the disease, a specific effect in preventing the dissolution of the blood. In all the cases in which they were timely and properly administered, they prevented the bad fœtor in the breath, the stoppage of the secretions, the yellow colour in the skin, the black vomit, and the other fatal symptoms which were so common in those cases when these medicines were not used."

Dr. S. was next induced to try what effect these agents would have when mixed with the blood itself while it was still warm and fluid, and just drawn from the system, and he found that every *one* of them possess the property of giving a rich arterial colour to venous blood.

To ascertain the effects of different agents on the blood, Dr. S. made a number of experiments, and in these he observed—

"1st. That all the acids give a dark colour to the colouring matter of healthy blood; and in proportion to their strength, they change the colour from red to black, as certainly as they change vegetable colours from blue to red. When any one of the acids was diffused in a little water, and then mixed with the fluid blood, the colour of the whole was immediately changed from red to black. Even the vegetable acids so completely blackened the blood, that the addition of a little water converted the whole into a fluid exactly resembling the black vomit.

"2d. The pure alkalies have a similar effect with the acids in changing the colour of the blood from red to black, though not in the same degree.

"3d. The neutral salts immediately changed the venous blood from a dark modena red to a bright arterial colour. Even those salts that contain a slight excess of alkali, the sub-carbonate of soda for example, immediately give to venous blood a beautiful bright arterial colour.[*]

"4th. When the neutral salts were mixed with the dark and dissolved blood that had been taken from the heart of those who died of the yellow fever, even this black and dissolved fluid was immediately changed from black to a bright arterial colour."

The presence of saline matter in the blood, observes Dr. S. "is not accidental, for it is as essential, and exists as invariably in healthy blood, as either fibrin, the albumen, or the colouring matter.

In a work which will soon be published. Dr. S. says he will endeavour to prove,

"First, that the blood owes its red colour to this saline impregnation. Black appears to be the natural colour of the colouring matter, for when we take a clot of blood, and deprive it completely of its saline matter, by immersing it in fresh water, the colouring matter soon becomes so black, that even oxygen has no effect in changing its colour. But when we immerse this black clot in an artificial serum, made by dissolving some saline matter in water, the black clot in this clear fluid assumes almost immediately a beautiful bright arterial colour. Secondly, that to this saline matter, the fibrin owes its fluidity, for it remains fluid only while mixed with the saline matter, and becomes solid when the saline matter leaves it to unite with the serum. Thirdly, that the change of form which this saline matter undergoes, when the blood changes from arterial to venous, and from venous to arterial, changes its capacity for caloric, and gives it an influence in supporting the temperature of the system. The saline impregnation also adds to the stimulating quality of the blood, and assists even in a high temperature in adding to its power of self-preservation.

"The facts which he will endeavour to establish, he adds, are partly these.

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[*] "The effects of these experiments are best seen when they are made on healthy blood, the agents ought first to be dissolved in a little soft water, and then well mixed with the warm blood before it begins to coagulate."

1st. That in violent continued fevers, even where proper means are used to protect the organs by reducing the excitement, chemical changes often take place in the whole circulating current; and in these fevers, these changes are almost always the sole cause of the mortality. In proportion as the disease advances, the blood loses its solid part, and becomes thin; it loses its saline matter, and becomes both black and vapid; it loses its preservative power, and goes fast to decay, it loses its vitality, and in a short period becomes totally incapable of either stimulating the heart, or supporting life. The degree, to which these changes take place, is in proportion to the malignancy of the disease. In the yellow fever, in the African typhus,* in the plague, &c dissolution of the blood is a common cause of death. The typhus of cold countries is comparatively speaking a mild disease; but even in the common typhus similar changes take place in the blood, though in a less degree. This has been clearly proved by the important experiments of Dr. Reid Clanny, of Sunderland.

"2d In all cases of bad fever, the loss of the saline, or preservative power, appears to be in every instance the chief cause of the entire dissolution of the vital fluid.

"3d. Where proper means are used to protect the organs from the increased excitement during the early stage of the disease, and after the excitement is sufficiently reduced, when proper nourishment is given, and certain saline medicines are timely and judiciously used, the bad symptoms are generally prevented. When proper saline medicines are used, they do not fret the stomach, they act on the intestines as much as is necessary, they keep up all the secretions, particularly that of the kidnies, and enough is absorbed to enter the circulation, and prevent the dissolution of the blood, and preserve it until the fever abates, and all the danger is past. This I am warranted to state as a fact, inasmuch as this treatment was commenced in the West Indies in 1827, and since then it has stood the test in several hundred cases of the West India fevers, where it has been tried both by myself and others, and with scarcely a single loss, when we were called to the patients within the first twenty-four hours after the attack, and with very few death when we were called in previously to the commencement of the fatal symptoms. My friend Dr. George William Stedman, now of St. Thomas, and others, have adopted the same treatment, and the result in their practice has been similar to that which occurred in my own cases."

"It may be clearly proved," Mr. S. asserts, "that in the West India fevers, those patients that are left entirely to themselves, have a much better chance of recovery than those who are treated with emetics, calomel, or antimony, opium or acids; and that these remedies, instead of being useful, add greatly to the sufferings of the patients, they decidedly increase the very evils they are meant to relieve, and add greatly to the mortality in hot climates."

XXIV. *The Practice of Medicine, according to the Principles of the Physiological Doctrine.* By J. Coster, M. D. Translated from the French. Philadelphia, Carey & Lea, 1831. pp. 319, 8vo.

This is one of the numerous excellent manuals composed for the use of students, and for which we are indebted to the French. We have already spoken of them in general with approbation, and particularly recommended several, which have become naturalized among us by a translation. The immediate object of this notice exhibits a compendious view of practical medicine, prepared in accordance with the physiological doctrines—doctrines which are unquestionably winning no little favour for themselves wherever they become known, and which, though attracting considerable attention in this country, are retarded in their progress from the want in our language of works illustrative of them. This desideratum will, however, soon be supplied by translations of the principal works of the great founder of these doctrines.

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* Or the Bulam fever of Chisholm.

To return to the work at the head of this article; it is obviously impossible to present an analysis, or to review it, within the limits to which we are here restricted, we can only express our favourable impressions in regard to it, and recommend it as an excellent digest or manual of medical practice.

XXV. *Pathological and Practical Researches on Diseases of the Brain and the Spinal Cord.* By John Abercrombie, M. D. Fellow of the Royal College of Physicians of Edinburgh, &c. First American from the second Edinburgh edition, enlarged. Philadelphia, 1831, pp. 464, 8vo.

Our readers are already, in some degree, acquainted with the value of this work, through the interesting cases selected from it, which enrich the periscope of several of the numbers of this Journal

Its merit we conceive to depend upon its numerous cases. It is correctly observed by the author, that there has been for some years a progressive and remarkable change of opinion in regard to the mode of conducting medical investigations. There appears to have been a tacit but very general admission of the fallacy of medical hypothesis, and an increasing conviction of the indispensable necessity of founding all our conclusions in medical science upon an extensive and accurate acquaintance with the pathology of disease. As presenting then "a faithful record of observations undistorted by hypothesis, a series of facts which every practitioner may study for himself, and from which he may acquire a knowledge of phenomena, and of their relations to each other, nearly in the same manner as he does from his own observation," this work possesses a permanent value.

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

ANATOMY.

1. *Anatomical and Pathological Observations on the Eye.* By Professor **Francis Rossi**, of Turin.—Pathological observation and the dissensions of authors having led Professor Rossi to entertain doubts relative to the continuity of the retina with the optic nerve, and the faculty ascribed to the former, of transmitting the images of objects to the sensorium, and he therefore thought it his duty to undertake some new experiments to satisfy these doubts.

Having extracted an eye from its orbit, Professor R. punctured the sclerotica a few lines from the cornea, so as to penetrate as far as the choroid coat. Having inflated the eye through this passage, it was suspended by the nerve until the commencement of putrefaction. Dividing afterwards the fibrous envelope by an incision carried as far as the optic nerve, he observed the retina and choroid coat separated from the nerve for the space of several lines, and in contact with the vitreous portion. he could readily separate the putrified sclerotica from the dried optic nerve.

The pigment of the choroid coat, which detaches itself during the softening and washing, he considers a product of secretion, the colour of which, according to an analysis of Professor Livini, is owing to the presence of protoxide of iron.

In affections of the globe of the eye, of the brain, and its meninges, he has never observed those associations which ought to exist provided there was a continuity of tissue. In cases of amaurosis of the optic nerve with loss of vision the texture of the ball of the eye exhibits no alteration.

In that variety of cataract which commences in the centre of the crystalline, the sight is lost from the first, notwithstanding the circumference continues transparent; the reason is, the rays of light can no longer strike upon the optic nerve.

In cases where the amaurosis was confined to one side, the optic nerve, compared with that of the sound eye, appeared wasted, whilst the retina on either side presented no difference in appearance, both being equally affected by the electro-galvanic influence.

In cases of polypus in the frontal and maxillary sinuses, the author found hydatids of the size of millet seed upon the choroid coat and retina, which had not impaired the sense of vision.

In certain cases of depraved vision the organization of the eye appeared perfect; it was in cases of nyctalopia only where he observed the pigment of the choroid coat assume a yellowish hue.

These facts have led the author to the following conclusions:—1st. That the parts entering into the formation of the globe of the eye are not a prolongation of those of the encephalon. 2d. That the retina is not a continuation of the optic nerve, and that it probably serves to modify, in a certain manner, the images which it transmits to this nerve.

In regard to this transmission, he has observed in the course of his investigations that the image of objects is always impressed upon that part of the retina situated rather above a horizontal line, which would divide it into two equal parts; and from this he supposes that this image, which falls inverted upon the retina, comes to be reflected upon the optic nerve in consequence of the concavity of this coat, thus making a double reflection, by means of which the image is again turned right side upwards, and carried to the brain in the condition that it enters the eye.—*Bulletin des Sciences Médicales, May,* 1830.

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2. *Method of Cleaning Bones.*—Mr. J. W. West, of Northampton, recommends a combination of chloride of lime and subcarbonate of potash, in the proportion of one pound of the former to one ounce of the latter, added to two gallons of water, for the purpose of whitening bones and destroying the unpleasant odour generally issuing from them. He says that it rendered a cranium perfectly white after having been in the solution not more than twenty-four hours.—*Lond. Med. Gaz. Oct.* 1830

PHYSIOLOGY.

3. *Nature of the Globules of the Blood.*—M. Raspail in his memoir on the intimate structure of animal tissues, asserts that the globules of the blood are simply albuminous, and he supports his opinion by the fact of the solubility of these globules in water, acetic acid, &c. M. Donné has been led to a contrary conclusion in the following manner—when we pour some water on a small quantity of human blood, placed under a microscope, the globules quickly disappear, and can no longer be distinguished; but if we look very attentively, by the aid of a strong magnifier, and especially if the light of a lamp be employed instead of that of the sun, we see that there remains in the water small, round, very transparent bodies, which are with difficulty distinguished, but which are nevertheless insoluble, however large may be the quantity of liquid. This is much more evident when we employ the blood of the frog, the globules of which are much larger, we perceive these small round bodies even by the solar light, which are the globules themselves deprived of some of their elements. If we wish to repeat this experiment on a large scale, it is necessary to diffuse about an ounce of blood in eight or ten times its weight of water, or more: it is to be afterwards filtered, and the plastic matter which remains upon the paper, collected; this substance which has all the characters of fibrine, placed in small quantity on a plate of glass with a little water, and examined with a microscope, by the light of a lamp, will present all the globules with their primitive forms. Finally, by varying these experiments it will be seen that the globules of the blood are not entirely soluble in the menstrua which dissolve albumen, and which do not dissolve fibrin. Thus ammonia, and acetic acid make them disappear, so that no traces of them can be discovered. M. Donné concludes from these facts, that the globules of the blood are not a simple precipitate of albumen, as M. Raspail asserts, but that they are formed of a tissue, of a frame work thus to speak, of fibrine, in the meshes of which the albumen and colouring matter are deposited. In truth, the albumen and fibrin are not two different principles, the one being but a modification of the other: but this is of little consequence as regards the question itself; all that M. Donné wishes to establish, is that the globules of the blood are not soluble in water, and that, if they are albuminous, as M. Raspail says, they consist of albumen in the state commonly called by chemists fibrin.

We see that the opinion of M. Donné respecting the globules of the blood, differs from that of Hewson and MM. Prévost and Dumas, who regard them as composed of a central vesicle enveloped by a layer of colouring matter.

With these skilful observers, he thinks that the globules are of a lenticular form when they flow from the veins; but the nucleus of these small bodies is, according to him, a slight tissue of fibrin, which contains in its meshes albumen and colouring matter, nearly in the same way as the hyaloid membrane contains the vitreous humour. From being flattened they assume a spherical form when placed in contact with a little water, or when they remain for a certain time in the serum, and their diameter diminishes a little, because these small bodies then absorb the fluid, and swell. If the quantity of water is sufficiently large, it removes the albumen and colouring matter, which are very soluble, and the frame work of fibrin is no longer perceived in the reddish fluid; but they may be discovered by the means already pointed out. If the water is evaporated, small, round, transparent particles are perceptible on the glass, which are these same globules, and which may be rendered more apparent by submitting them to the vapour of iodine, which colours them more deeply than the surrounding parts.—*Archives Générales, August*, 1830.

4. *Period of Puberty in Women.*—Mr. Robertson has given in the *North of England Medical and Surgical Journal*, the following table, exhibiting the ages at which three hundred and twenty-six women began to have the catamenia.

Table.

In their 11th year	6	In their 16th year	54
12th	12	17th	50
13th	31	18th	19
14th	60	19th	18
15th	72	20th	4

This table was formed by questioning the pregnant women who came to the Lying-in Hospital to deliver in their letters of recommendation as home patients. These women were generally in health, as appears by their walking, in an advanced stage of gestation, a considerable distance to the hospital. The circumstance of pregnancy is a guarantee, as regards the whole of the cases examined, of exemption from serious disease of the generative system. Every answer was rejected which evinced either a doubtful recollection of the fact, or which was reluctantly given in relation to the fact. The question was also put, not as if a matter of curiosity, but as connected with other questions necessary to be answered for admission as a patient.

5. *Menstruation continued to the 94th year.*—A case is recorded in the *Ann. Univ. di Med.* of a female, aged ninety-four, whose relatives were remarkable for their longevity, and who continued to menstruate from the 53d to the 94th year, and at present she is in perfect health.—*Lond. Med. and Surg. Journ. Oct.* 1830.

6. *Extraordinary instances of Reproduction.*—Dr. Ryan, the learned editor of the *London Medical and Surgical Journal*, states, that he was called to a patient, aged forty-one, of a sanguine temperament, who had menstruated at the age of twelve, and married between eighteen and nineteen. She had a seven month's child in the eighth month of her marriage—had twins about the fourth month, three times during the year 1829, and again in December 31st, when she was attended by Mr. Whitmore, of Cold Bath Fields, and delivered of two infants; and on January 28th, 1830, she was attended by Mr. Thomas, of Bagnigge Wells Road, and delivered of an infant, which he considered of the same age as the preceding. On the 7th of June last, she aborted, at the third month; on the ninth a second fœtus was expelled, she was attended by Mr. Sandell; and as there was no discharge whatever, from that time to this, considers herself still pregnant. The abdomen is about the size of a woman in the fifth month of utero-gestation; she has had twenty-four children in twenty-one years. She menstruated regularly previous to marriage. She is always in good health

when suckling, and ill when breeding; she is always pregnant about the fifth month of lactation; menstruation has often taken place during pregnancy, and was followed by abortion; she has never suffered from leucorrhœa; her diet consists of bread and porter, but no animal food; she often rejects large quantities of bile, and can foretell its approach "by the smell of her breath." Her mother is seventy years of age, and in good health; has had eighteen children born alive.

The wife of her husband's first cousin, resides at Mount Pleasant, in this neighbourhood, is in her forty-fifth year, and has had thirty-two children, including miscarriages. Within a few years "she bred with dropsy, her legs burst, and the water spouted across the room," but she went to the full time; she is now in good health, and has not ceased to menstruate.

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7. *Pregnancy occurring during Dysmenorrhœa.*—Dr. Ryan says, that two cases of dysmenorrhœa have lately fallen under his care, both aggravated by marriage, and both followed by pregnancy. One of these patients was twenty-three years of age, the other eighteen. Neither of them passed the membranous shreds, described by obstetric writers.

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8. *On the Cause of the Entrance of Air into the Veins during Operations on the Neck.*—It is well known that on several occasions death has taken place suddenly during surgical operations on the neck, and that the accident has been traced to the admission of air into the heart and great vessels by the mouths of divided veins. But no satisfactory explanation has yet been given of the fact that such an accident occurs rarely, or of the circumstance that air should ever obtain entrance at all. For although most physiologists now admit to a certain extent the principles laid down by Dr. Barry, as to the venous circulation, and the suction-power which is exerted during inspiration on the blood in the veins that enter the chest—still, as M. Berard, the author of the paper quoted above, has remarked, it is not easy to see how this suction-power should have the effect of drawing air into the cavity of a flaccid vein, the parietes of which must yield to atmospheric pressure before any fluid, even aeriform, can enter by an opening in it. M. Berard, however, has succeeded in explaining the cause of the entrance of the air; and has likewise discovered in this cause an organization of considerable consequence for maintaining the functions of the great veins near the heart.

He observes that the veins are all formed of extremely flaccid coats; so as to collapse entirely when empty, provided the atmospheric pressure act on their external surface, and that they would consequently be all reduced to a similar state by the suction-power of the heart and chest, unless their calibers were kept open by some peculiarity of mechanism. This peculiarity consists in the adhesion of the parietes of certain veins to adjacent parts, which tend to keep them stretched. Such a structure has been long known to exist in the case of the sinuses of the brain, and ramifications of the venæ hepaticæ; the former of which are kept constantly distended by the organization of the falx and tentorium of the dura mater, and the latter by the incompressible nature of the organ through which they are distributed. But M. Berard now calls the attention of physiologists to certain peculiarities in the organization of other veins for accomplishing the same purpose. The entrance of the superior vena cava into the right auricle of the heart is kept in a state of constant tension by the prolongation over it of the strong fibrous covering of the pericardium; and the subclavian veins, the junction of the jugulars with these veins, as also the whole course of the axillary veins from the scaleni muscles to the arm-pit, are maintained in a similar state, by being attached to various aponeurotic membranes at the root of the neck. Hence if the superior cava, subclavian axillary, or commencement of the jugular veins be divided, they do not collapse as other veins do, but remain gaping, unless they are detached from the texture by which they are kept distended, and then they collapse like veins generally.

Were it not for this organization, it is obvious that the suction-power of inspiration, even of the powerful kind which is admitted by some physiologists, could have little or no effect in moving the blood towards the heart along the superior cava. But the chief veins being kept in a state of distention, and so enabled to resist the compressing tendency of atmospheric pressure, the pumping or inspiring power of inspiration becomes effective; and it is particularly worthy of remark, that as the aponeurotic membranes to which the veins are attached, extend from bones to bones, and are most stretched during the expansion of the chest, it is during the act of inspiration that the veins are most extended. The same organization will also for the same reason account for the entrance of air into the heart, from wounds of the veins at the root of the neck during surgical operations. If the subclavian or commencement of the jugular vein is opened, air will enter to a certainty, unless immediate precautions be taken to exclude it; and as for the same accident occurring when more distant veins are opened, it will be found, we doubt not, to arise from the divided vein having acquired, from connexion with diseased parts, an organization similar to that possessed by the subclavian and axillary veins in their natural state. M. Bérard farther observes that the inferior cava, by its passage through the diaphragm, is similarly organized with the superior cava. It remains constantly extended and gaping, even when empty. Hence the suction effect of inspiration is transmitted to the hepatic veins, which we have already seen are fitted for conveying it by a corresponding structure. It is thus apparent that the inspiratory power of the chest is one of the powers which contribute to the movement of the blood in the vascular system of the liver. The want of a corresponding structure of the great veins leading to the extremities, renders this moving power of no influence whatever on the circulation in the other branches of the inferior cava.—*Ed. Med. and Surg. Journ. from the Archives Générales de Médicine, Juin,* 1830.

PATHOLOGY.

9. *Remarkable Case of Tubercular Excavation communicating with the External Air through an Aperture between the Ribs.*—The following rare and curious case was under the care of Dr. James Johnson, the learned editor of the *Medico-Chirurgical Review*, and is recorded in his Journal for October last.

Mr. Macklin, æt. 47. His symptoms at present, July 25, 1830, are frequent, small, troublesome cough—expectoration of yellow, puriform sputa, occasionally tinged with blood, and rather abundant—pain at times in right side of chest and shoulder—decubitus on *left* side only, with head rather high—aspect phthisical—disposition to perspire at nights—pulse feeble—appetite good.

Chest narrow, contracted—on deep inspiration left side only expands—right shoulder droops.[*] Immediately below the right sterno-clavicular articulation, but rather nearer the shoulder, the integuments for a space of two inches, or rather more, in diameter, are reddish and very thin. On coughing or expiration, they swell out into a tumour nearly as large as a goose egg, which almost seems ready to burst. The integuments are drawn inward on inspiration. Great part of the sternal end of first rib, and right side of upper bone of sternum between first and second rib are absorbed, and the space between the first and second rib is consequently enlarged from above downwards. The integuments here and the neighbouring bones are very tender on pressure.

Percussion and Auscultation.—Whole of *left* thorax sounding tolerably sonorous. Respiration in this side unequal, but generally puerile—no râle, nor pectoriloquy.

Lower part of *right* thorax anteriorly, and right back dull upon percussion. The respiration in this side imperfect every where, but especially so below, although almost cavernous above; no pectoriloquy heard, but gargouillement on coughing, at the apex of the lung.

History.—Three years ago was in good health, but suffered from a cough the preceding winter. In October, 1827, his wife died of confirmed phthisis, which had lasted for two years. In the succeeding February, he caught a cold, for which he treated himself at first, but without success. Mr. Cosgreave was called in and prescribed for him. Cough, with more or less expectoration remained, and in the winter of 1827–8 he went to Madeira, where he gained flesh surprisingly, but never lost his cough. In the spring of 1828 he returned, and from that time till a month or so ago, he still continued to suffer from the cough and expectoration, with occasional pain in the side, and emaciation. Three weeks or a month ago emphysema of the right side of the neck and parts contiguous to the tumour took place: it subsided in a few days. After the subsidence of the emphysema, the tumour below the right clavicle was discovered by Dr. Johnson. Within the last three weeks the integuments have grown thinner.

Plaster and roller to defend the thin integuments from bursting—sedatives—moderately good diet.

28th. Awoke last night, and found that the integuments had given way, without any particular exertion of which he was aware. Suffers little aggravation of the symptoms in consequence. Discharges air through the aperture at each expiration.

Light compress.

Aug. 1st. A considerable quantity of purulent discharge issues from the wound on coughing—expectorates by the mouth little else than glairy mucus, (probably from bronchi and other lung)—feels inconvenience if the dressings obstruct in any way the egress of matters from the wound—cough troublesome.

Pill of Morph. Acet. and Conium, ter die—ale, meat, &c.

Monday, 9th. We examined the patient. The expectoration by coughing, from the aperture between the ribs, was very considerable, and attended with a loud discharge of wind, so much resembling a common cough, that it was difficult to say whether the noise was made by the mouth or the intercostal aperture. Very little expectoration now comes from the mouth except when in the horizontal position, when a small proportion is discharged in the common way. The cough is still more troublesome than before the new opening took place—he wastes in flesh, and the total discharge is increased. He has, however, no fever, and he sleeps a little by the aid of Battley's sedative. He takes sulphate of quinine in acidulated infusion of roses.

22d. The patient has daily lost ground, and there has lately come on a colliquative diarrhœa, which opiates and absorbents cannot check. The expectoration from the external wound continues profuse, and the rush of air at each expiration, and especially when coughing, is considerably greater than that which is emitted by the trachea and larynx. The constant discharge from the wound now renders his life a burden to him, and death is become acceptable. On the 24th of August he expired. The body was examined by Dr. Dill and Dr. Johnson. The following is Dr. Dill's report.

Inspection.—The body was much emaciated—the skin covering the sternal ends of the second and third ribs of the right side was ulcerated, and a fistulous opening, which communicated with the right thoracic cavity, was formed in the intercostal space between them. On removing the sternum and cartilaginous portion of the ribs, it was found that this fistulous aperture terminated in an immense cavern within the right lung, which was capable of containing at least one pint and a half. This cavity was lined with a tolerably dense membrane, which adhered both anteriorly and behind to the ribs, and although in some parts there intervened between this sac and the costal pleura a small quantity of pulmonary parenchyma, which had not been as yet destroyed, in general no remains of lung could be perceived beyond the sac, which was in immediate union with the pleura which lined the chest. The destructive process which had formed this enormous cavity within the substance of the lung, had exten [illegible]

[illegible] pleura, which had lined the sulcus between the superior and middle lobes; and towards the left side of the floor a fistulous opening was discovered, which admitted the extremity of the little finger. By slitting down the division of the trachea which is devoted to the right lung, the third branch, which this tube subdivides into, was found to terminate in this opening; and in its immediate neighbourhood was seated another aperture, which was likewise the termination of another branch It was principally through these openings that the matter, which was expectorated by the mouth, made its way into the trachea, and these free outlets aided by the external aperture upon the surface of the chest, had furnished such a ready exit to the contents of the cavity, that although almost all the upper and middle lobes were destroyed there was scarcely any tubercular fluid in the sac. The lower lobe was also extensively diseased, and contained several smaller cavities, which freely communicated with that now described. One of these cavities, large enough to contain a pigeon's egg, in place of being ragged, uneven, and suppurating, like the rest, was lined with a fine, smooth, mucous membrane. This cavity had been obviously the seat of previous disease, which nature had arrested by forming this artificial membrane: but as the remainder of the lung—even that in the immediate neighbourhood of this healed vomica—was irremediably disorganized, this sanative effort could have given but a trifling, if any check, to the progress of the symptoms. The right lung was in a tolerably healthy state, having only a few hard tubercles imbedded in its upper lobe, and the heart exhibited no manifestation of disease.

10 *Croup in an Adult.*—M. ANDRAL, jr. presented to the Royal Academy of Medicine of Paris, at their sitting of the 16th of February last, a false membrane which lined the larynx, trachea, and bronchia to their smallest ramifications. This membrane was taken from a French soldier who died in the Morea, with all the symptoms of croup. We are induced to notice this instance of croup in an adult, common as the occurrence is, in consequence of having seen it denied in a late work, that croup ever occurs at this period of life.

11. *Arterial Varices.*—Twenty years ago, M. PELLETAN attended a child who had a remarkable dilatation of the temporal and occipital arteries in their whole extent; the primitive trunk was tied without success; the patient died of successive hæmorrhages, and on post mortem examination it was found that the morbid dilatation was not limited to the arteries of the head, but extended also to some of the arteries of the limbs. Twelve years ago, M. Dupuytren met with a similar case, which he successfully treated by applying a ligature to the primitive carotid. Finally, in July last M. Dupuytren met with another case which furnished the pathological specimen, which he presented to the Royal Academy of Medicine. This specimen was furnished by a person on whom M. D. had performed amputation of the thigh for two aneurismal tumours of the ham, and for a cancer of one of the great toes. On dissection, it was found that the two aneurismal tumours of the ham were shrunk, and contained neither blood nor coagulæ; they were seated in the popliteal artery, the caliber of which was equal to that of the abdominal aorta: they were an inch apart, the upper was of the size of an almond, the lower, that of a large pigeon's egg. In both the internal and external membranes of the artery were dilated and formed the parietes of the tumour, whilst the fibres of the middle tunic were frayed, and through this fraying the internal tunic had passed to contribute to the

dilatation. Thus the existence of this species of aneurism, which was formerly doubted, has been proved. M. Dupuytren had previously seen an instance of it with M. Dubois. In the popliteal artery, as well as in the whole course of the tibial and peroneal arteries, the middle membrane was diseased, it was thickened, yellow, and the fibres separated in many places; the internal membrane, on the contrary, was unaltered. The anterior and posterior tibial and peroneal arteries, and the plantar arteries, were throughout of at least double their ordinary size, and had from place to place swellings perfectly resembling clusters of varices. M. D. proposes to give to this disease the name of aneurismal varices.—*Archives Générales, September*, 1830.

12. *Accumulation of Fæcal Matters simulating an Internal Strangulation.*—A man was attacked after a journey with symptoms of an internal strangulation; he had incessant vomiting, excessive constipation; the abdomen distended, and very painful on pressure; vomiting of fæcal matters. This man had had for a long time a reducible hernia which he had recently reduced; but he affirmed that it offered nothing unusual, and that he had applied his bandage as usual. Baths, reiterated bleedings, diluents, did not produce any relief. In consultation the question was agitated whether an operation should not be performed, and whether there was not an internal strangulation. The majority, however, were opposed to the operation. The patient continued in this condition until the fifteenth day, fæcal matters being thrown up, and his strength declined. At this time a celebrated surgeon being called in, proposed an operation, thinking that it was necessary to operate even in the absence of any evident sign of a strangulated tumour either, in the inguinal canal, in the abdomen, or in the neighbourhood of the ring. The operation was determined upon—but as M. Sanson was about commencing, perceiving no tumour, nor pain, nor tension of any kind above the ring, nor in the inguinal canal, nor deeply in the vicinity, and remarking that the point of the abdomen corresponding to the hernia was the only one which was neither painful nor tense, he examined the abdomen anew with great care, and discovered on the left side, deep-seated and obscure, a long tumour, which seemed to him to be the colon filled with indurated fæcal matters. He introduced the finger into the rectum as deeply as possible; he experienced great difficulty in introducing it, so much was it contracted. He then endeavoured to introduce a gum elastic sound, but it would not enter far, so strong was the constriction of the digestive tube. Many enemata of olive oil were injected with force; at first they produced no effect, but on continuing them they brought away some soft yellow matters; they were continued without interruption. M. Sanson then determined to administer a purgative, but it was impossible to give it by the mouth, the vomiting being continued, and the patient not being able to retain even a cup of water. A small blister was applied to the thigh, and after removing the epidermis, a drop of oil of croton tiglium was placed on the cutis; an abundant evacuation resulted. The vomiting ceased; the patient evacuated in three or four days, many pounds of soft, yellow, fæcal matters. All the symptoms evidently depended upon this accumulation of fæcal matters in the digestive tube.—*Journal de Medecine Prat. July*, 1830.

13. *Poisoning by Mouldy Bread.*—Dr. **Westerhoff** was called in 1826 to two children of a poor labourer, who had been simultaneously attacked with the following symptoms. The eldest, aged ten years, had his face red and swollen, his countenance was animated and bewildered, tongue dry, pulse feeble and quickened, head-ache, giddiness, unextinguishable thirst, violent colic, desire to sleep, and alternate unsuccessful efforts to vomit, subsequently sudden vomiting and very abundant alvine evacuations, after which very great faintness, indifference to every thing, and sleep for moments at a time. The younger, aged eight years, was rather more violently attacked than his brother. Dr. W. having understood that they had eaten the preceding day only a piece

of old, mouldy, rye bread, prescribed a demulcent treatment, and they soon recovered.

Some time afterwards, several boatmen having eaten some mouldy rye bread, were attacked with similar symptoms, but they were quickly relieved by vomiting, which came on spontaneously. Dr. W. asks whether this kind of poisoning arises from an alteration in the quality of the bread, or from the vegetation which has been called mouldiness, (*Mucor mucedo.*)—*Archives Générales, Sept.* 1830—*Bydragen tot de Natuurkund. Wetenschapp, T. IV. p.* 110.

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14. *Case of an apparent Aneurismal Tumour—Hepatitis—Insidious Hydrothorax.*—M. Mérat related to the Medical Society of Paris at their sitting of the 19th of June last, the case of a man who was suddenly attacked, after an exertion to move some furniture, with a pulsating tumour in the neck, over the course of the carotid artery. Little attention was paid to this swelling till it became painful, when he applied to M. Mérat for assistance. The pulsation and the site of the tumour induced M. Mérat to conclude that it was an aneurism of the carotid. He advised the application of ice, and under this remedy the tumour diminished in size, and ceased to pulsate; but the patient could not bear the ice, and it was discontinued. The tumour remained stationary for three weeks. M. Dubois examined it, and considered it as aneurismal, but arrested in its progress by the application of the ice. Nevertheless the tumour exhibited a doughy feel, and an irregular circumscription, which induced doubts in the minds of the members of the society, when the patient was presented at a former meeting. Shortly after this the patient suddenly evinced signs of acute hepatitis, with an enlargement of the liver below the false ribs. This was attributed to his having taken cold while applying the ice to his neck. The symptoms became more intense—the right hypochondrium swelled, as did that side of the thorax—the respiration became dull in the right lung—the liver was found to descend far below the ribs, and there was excruciating pain extending to the loins. The most active antiphlogistic treatment was employed, but without success. The sense of suffocation increased, and the patient succumbed.

On dissection, by M. Mérat and M. Deville, the right side of the chest was found to contain more than eight pints of yellow serum, which had pressed back the lung, and by depressing the diaphragm made the liver to descend below the ribs, and appear enlarged. The pleura showed no signs of inflammation, and all the thoracic viscera were sound. The cervical tumour was then examined, and found to consist of a mass of glands, the size of an egg, seated over the arteria innominata, at the origin of the right carotid. The coverings of this tumour were highly injected, and discharged much blood when cut into.

M. Mérat could not learn that the patient had ever experienced any symptoms which could lead to the suspicion of the existence of hydrothorax previously to his consulting him for the cervical tumour. The symptoms which were supposed to indicate an hepatic affection, in fact resulted from the hydrothorax. The oppression, the depression of the liver, the tumefaction of the hypochondrium, and of the right side of the thorax are perfectly explained by the large accumulation of aqueous fluid.

This case is also highly interesting as regards the diagnosis of aneurisms of the carotid and subclavian. Cases have been recorded, in which tumours of the thyroid have simulated aneurisms of the carotid; but this is perhaps the first instance which has been related of a tumour simulating an aneurism at the origin of the subclavian and carotid, at the extremity of the innominata. The diagnosis of aneurisms of the neck, always difficult, may in these cases be elucidated by the progress of the symptoms under the influence of treatment.

In a preceding number of this Journal, Dr. Jackson related a case of hematosis, in which an aneurism of the carotid was at first suspected, and there can be little doubt that operations have been performed for aneurism in the neck, where no such disease existed. The surgeon would do well to be cautious under these circumstances.—*Transactions Medicales, July,* 1830.

15. *Case of Inflammation of the Vena Cava Ascendens.*—Dr. J. Hourmann relates in *La Lancette Française,* the following example of this affection, which is interesting as exhibiting the immense resources of nature, and as confirming many points in the history of phlebitis. The subject of the case was a porter, of strong constitution, and in the habitual enjoyment of good health. Some weeks before his entrance into hospital he fell, and struck violently the right side of his chest against a step. Leeches were applied to the injured side, but a dull pain remained. About fifteen days afterwards he perceived a swelling of the right foot, and soon after of the whole lower limb of this side. He experienced also an uneasiness in the groin of the same side, and then the left limb, which had previously been unaffected, began to be infiltrated. In this condition the patient entered the hospital. He had no marked functional derangement of the viscera, and he did not complain except of the swelling of the limb. M. Louis immediately pronounced the disease to be phlebitis, which had commenced in the right crural vein, and which had successively extended to the external iliac, the primitive iliac, and lastly, to the vena cava ascendens. Before the vena cava became affected, there was no obstruction to the circulation of the left limb, but as soon as the inflammation extended to the former, the latter became infiltrated. At this period none of the veins of the limbs were very remarkably prominent; however, on examining with the fingers, in the course of the saphenas some renitence was perceived; the veins of the anterior of the abdomen did not exhibit any unusual appearance. The diagnostic of M. Louis was soon confirmed. In fact, in a few days many veins were observed to become developed, arising from the groin and ramifying over the abdomen towards the chest. One of these on each side passed to the neighbourhood of the arm-pits. The size of these veins was at first small, but they soon became enlarged, and the two which ran to the arm-pits became as large as a goose-quill. When this vein was compressed with the finger, the blood was observed to stagnate below the place of compression, and to accumulate in the groin; when the vein was emptied by pushing the blood towards the chest, the blood rushed from the groin towards the point of compression, and instantly filled the vessel. Once only the blood was observed to flow in an opposite direction. Did this depend, asks the relator of the case, upon an obstruction to the passage of the blood through the cavities of the heart, and a reflux into the vena cava? From the appearance, it cannot be doubted that there existed an obstacle to the passage of the venous blood from the inferior extremities by the ordinary routes, and of the establishment of a supplementary circulation. The blood arrived at the groin not being able to obtain a passage through the crural vein, escaped by the orifice of the saphena, and from it, reversing by its force the natural course of that which came from the abdominal parietes, it passed towards the heart through the superficial veins; one of them uniting with a thoracic vein, discharged the fluid into the axillary trunk, and the vena cava descendens poured it into the right auricle.* The patient experienced few inconveniences; there were some premonitions of a pleuro-pneumonia, which excited fears for a moment of the common consequences of phlebitis, the passage of pus into the circulation. But being promptly met, these serious symptoms were soon dissipated. M. Louis restricts himself, as regards active treatment, to bleeding, often repeated. By these means, and the admirable efforts of nature, the œdema almost entirely disappeared, and the patient was discharged almost perfectly well.

16. *Action of Cold on the Lungs.*—It is stated in our esteemed cotemporary, the *Journal de Médecine Pratique* for August last, that M. Flourens has made some important experiments relative to the action of cold upon animals. A

young bird suddenly exposed to a great and continued cold, is seized with so violent an oppression of the chest, as to become instantly motionless, respires with extreme pain, ceases to eat or drink, and dies in a few hours with acute pneumonia. In this case the lungs on examination appear of a deep red colour, and are gorged with blood.

If, on the contrary, the cold is increased slowly, and with interruptions, the bird is affected with *chronic pulmonary inflammation*, and in this case its lungs are red and gorged with blood in some places, and in a state of suppuration in others.

These results led M. F. to think that he had a direct method of investigating one of the most serious diseases with which mankind are afflicted, pulmonary consumption. He wished to ascertain, 1st, whether in certain given cases, cold alone sufficed to produce this disease; 2d, whether in these same cases it was sufficient to avoid the cold in order to escape the disease; 3d, finally, whether this disease commenced by cold could not be cured solely by a moderate temperature.

With this view, having taken a number of pullets of the same brood, he placed some in a place constantly preserved of a mild temperature: none of them were affected with phthisis pulmonalis. Some of them were exposed to all the variations of the weather; almost all died of phthisis pulmonalis, after having passed through all the degrees of consumption. Finally, others, after having been exposed like the preceding to all the atmospheric variations, and after having shown like them evident signs of phthisis, were placed in a place constantly kept of a mild temperature: most of them recovered their strength, and some months afterwards were completely cured.

It is important to compare the lungs of the cured pullets with lungs of those which had died of phthisis. In the latter, the lungs, the trachea, and the bronchia were filled with purulent matter, of a deep gray, and of a fœtid odour, sprinkled with an infinite number of black points; the tissue of the lungs was gorged with blood, softened, as if putrified; many of its cells were red and full of pus; others exhibited black points similar to those with which the purulent matter was sprinkled, and in many of these points there was a small, hard, crepitating body, of a white colour, and of an osseous, corneous appearance. In those pullets which were cured, some portions of the lungs exhibited nothing but depressed, closed cells, where traces of black points which they had contained when diseased were still visible.

From all these experiments, M. F. concludes, 1st, that cold does not act solely upon the organization and life collectively and in mass; 2d, that it acts especially, and by a particular and determined action, upon the respiratory organ; 3d, that it acts upon this organ in two distinct modes—one which produces an *acute inflammation*, and is promptly fatal; the other which produces a *chronic inflammation*, which is *phthisis pulmonalis;* 4th, finally, that a moderate and constant warmth always prevents the attack of phthisis pulmonalis, and that often even after the attack it arrests its progress.

These experiments as yet only bear upon *accidental* or *acquired* phthisis; the author proposes to extend them to *congenital* or *tubercular* phthisis, to which certain mammifera, the ruminantia and gnawers, are particularly subject. But we see already from these, on the one hand, the assistance we may derive in illuminating human pathology by observations on the diseases of animals, and they show clearly, on the other, that the good effects which have long been observed from mild climates, arise from their producing the cicatrization of the ulcerations and inflammation of the lungs caused by cold climates.

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17. *M. Broussais's Opinion respecting the Seat of Intermittent Fever.*—M. GUERIN DE MAMERS, in a memoir in the *Journal des Progrès, Vol. II.* 1830, asserts it to be M. Broussais opinion, that irritation of the stomach is the primitive element of intermittent fevers. This is denied in M. Broussais's Journal for August last, and it is said that this learned professor has seen larvaceous fevers,

and knows well that intermittent irritations may manifest themselves in the different organs without the participation of the stomach.

18. *On the Chemical Solution of the Stomach after Death.*—In the *Transactions Medicales* for October last, there is an interesting memoir on this subject by M. **Sandras**. M. S. has carefully repeated the experiments of Dr. Carswell, of which we gave an account in our last number, and has extended and varied them, and he denies the correctness of the conclusions obtained by Dr. C. He says that experiments on rabbits, whose nourishment and digestion are so different from those of man, do not afford any conclusions which can be justly applied to explain the phenomena in man. M. S. in repeating the experiments of Dr. C. on rabbits, has not always found the results in accordance with those observed by the former. But M. S. has also tried similar experiments on animals whose food and digestion are more similar to man than are those of rabbits, as cats, dogs, &c. and the results were entirely dissimilar from those obtained by Dr. C.

MATERIA MEDICA AND PHARMACY.

19. *Tartar Emetic Ointment.*—The activity of this ointment is to a considerable extent proportional to the fineness of the powder of the tartar emetic; and as it is frequently carelessly prepared with the tartar emetic as found in the shops, we need not be surprised that in many instances it disappoints the expectations of the practitioner. The reduction of the salt to a proper degree of minuteness requiring some time and labour, M. **Mialhe** recommends that a saturated solution of it in cold water be made, and that it then be precipitated with alcohol; a very small quantity of the latter, will suffice, he says, to precipitate the emetic in the form of a powder of extreme tenuity. The precipitate is to be collected on a filter and dried. This added to simple cerate, two drachms of the former to an ounce of the latter, will make a very active ointment.

20. *Efficacy of Secale Cornutum in Hæmorrhages.*—Dr. **Spazani** relates in the *Ann. Univer. di Med.* for March, cases of menorrhagia, epistaxis, uterine congestion, hæmoptisis and hæmaturia, which he cured with *secale cornutum.* He thinks the medicine contra-stimulant, and that it possesses a peculiar action on the minute vascular ramifications.—*Lond. Med. and Surg. Journ. Oct.* 1830.

21. *Experiments on the Bromures of Mercury.*—Dr. **Werneck** has instituted some experiments on the action of the proto and deuto-bromuret of mercury, which seem to prove that the effects of the proto-bromuret are very analogous to those of the proto-chloruret of mercury; it particularly promotes the urinary secretion, and does not so readily induce salivation. Dr. W. has employed it under the same circumstances as those in which calomel is employed, and with similar success.

Dr. W. has experimented with the deuto-bromuret only in small doses insensibly increased; the same effects resulted as from the use of corrosive sublimate; it acts especially powerfully on the secretion of urine, and also upon the cutaneous transpiration, to which it should perhaps be preferred in herpetic affections. It does not produce salivation so quickly as the corrosive sublimate; it affects the stomach and chest less; it agrees as well as the deuto-chloruret of mercury with individuals who have a scorbutic disposition.

Dr. W. has successfully employed the solution of the deuto-bromuret of mercury in cases of chancres, buboes, and different consecutive syphilitic affections.

Dr. W. relates a case of chancres of the scrotum, buboes and ulcers of the throat following chancer of the glans, in which he employed the solution of deuto-bromuret of mercury, (one grain of the medicine dissolved in two ounces of distilled water, thirty drops morning and evening,) with complete success. The solution was also applied by compresses and gargles to the ulcers. The dose was gradually increased until the patient took one hundred drops twice a day.

Dr. W. has satisfied himself, by subsequent experiment, that the best form in which the deuto-bromuret of mercury can be administered, is dissolved in sulphuric ether, according to the following formula:—℞. Deuto-bromuret of mercury, gr. j.; sulphuric ether, ℥j.; solve. From ten to fifteen or twenty drops to be taken in a small quantity of barley water every day after dinner.—*Gazette Medicale, No.* 33.

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22. *Chlorine an Antidote to Hydrocyanic Acid.*—MM. **Persoz** and **Nonat** have verified the favourable results which M. Simeon had obtained relative to the remedy which chlorine affords against prussic acid. They operated upon three dogs, upon the eyes of which a drop of prussic acid had been placed. Dividing the symptoms in three periods, namely, 1, uneasiness, 2, tetanus, 3, interrupted respiration, they found that when chlorine was applied in the first period, the relief was immediate, the respiration became regular, vomitings and alvine discharges occurred, the animal gradually regained its strength, rose unsteadily, and, in about half an hour, was as lively as at first. Applied at the second period, the symptoms were arrested, but the restlessness continued awhile: and though respiration was less painful, the convulsive movements continued for ten minutes, then occurred vomitings, &c. as before, and at the end of an hour, the animal was perfectly well. The two dogs thus treated, being tried next day with the same quantity of prussic acid, but without chlorine, died in a few minutes.

In the third case, all the effects of the prussic acid were produced before the chlorine was applied: the respiration had ceased for twenty-five seconds, and the animal was rapidly perishing; but the chlorine not only recalled it to life, but ultimately restored it to full vigour: the full effect only occurred, however, after some hours. Ten days after it was quite well, and the paralysis of the abdominal parts, which occurred in all, had in this case entirely disappeared.

After this, MM. Persoz and Nonat sought to ascertain whether the prussic acid, being absorbed into the vessels and tissues, the chlorine would follow and decompose it. Two dogs of equal strength were taken, the crural veins laid bare, and separated from the neighbouring parts, and especially the accompanying nervous fibres; then a drop of prussic acid was put upon each vessel. The effects were instantaneous; a few drops of chlorine, (solution,) were let fall on one of the crural veins; the other animal was left alone. The first was as immediately recovered as it was injured; the second died directly. The first felt no inconvenience after some hours, except from the wound. Endeavours were then made to kill him, by putting prussic acid upon the eye, and upon the crural vein of the opposite side; but the animal only felt temporary inconvenience, and a few convulsive movements, and was very quickly at ease. Hence it appears that the chlorine administered beforehand is taken into the circulation, and is then an effectual remedy against prussic acid.

Trials made with the chlorides of lime and soda, in place of chlorine, showed that they possessed no corresponding powers, being quite inert as antagonists to the hydrocyanic acid.—*Journal of the Royal Institution of Great Britain, No. I.*

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23. *Salicine.*—A very important memoir by M. **Leroux**, which was presented to the Academy of Sciences, has been most favourably reported upon by MM. Gay Lussac and Magendie. It relates to nothing less than the discovery of a principle in indigenous plants which may replace quinia and cinchonia as medical remedies. Being aware that the willow had been employed advantageously as a bitter and febrifuge, M. Leroux sought in it for some active princi-

ple, and ultimately sent two preparations to the Academy, one called salicine, the other sulphate of salicine. He at first thought the new principle was a vegeto-alkali, but when afterwards in Paris, he convinced himself that it had no power of neutralizing acids, did not combine with them, was rendered uncrystallizable by them, contained no nitrogen, and was not a vegeto-alkali. The sulphate was a mistake.

Salicine is in the form of very fine nacreous white crystals, very soluble in water and alcohol, but not in ether; it is very bitter, and partakes of the odour of willow bark. In order to obtain it, three pounds of the bark of the willow, (Salix helix,) dried and pulverized, is to be boiled in fifteen pounds of water, with four ounces of carbonate of potash, for an hour; it is to be filtered, and, when cold, two pounds of solution of sub-acetate of lead added, when settled, it is to be filtered, treated with sulphuric acid, the rest of the lead precipitated by sulphuretted hydrogen, the excess of acid neutralized by carbonate of lime, again filtered, the liquid concentrated and saturated by dilute sulphuric acid, then boiled with animal charcoal to remove colour, filtered hot, crystallized repeatedly, and dried without access of light. About one ounce of salicine will be obtained in the large way; probably twice the quantity would result, for great loss is occasioned by the above numerous operations. It may be preserved in well-closed bottles, and does not attract moisture.

As to the medicinal powers of this substance, M. Magendie states, that his own experience of its effects in intermitting fevers is favourable, and that he has seen three doses, of six grains each, stop a fever. He quotes the experiments of MM. Miquel, Husson, Bally, Girardin, Cognon, &c. at the hospitals and elsewhere, in its favour: they all agree in its anti-febrile power, and in stating that from twenty-four to thirty grains of salicine will arrest the return of the fever, whatever may be its kind. This is nearly the same as the dose of the sulphate of quinia.

In concluding, the commissioners state that M. Leroux has discovered in the willow, (Salix helix,) a crystallizable principle which approaches sulphate of quinia in its anti-febrile power, and that this discovery is, without contradiction, one of the most important that has been made for many years in pharmaceutical chemistry.—*Journal of the Royal Institution, No. 1. from the Ann. de Chimie.*

PRACTICE OF MEDICINE.

24. *Employment of Belladonna in the Treatment of Obstinate Intermittent Fevers.*—Professor Hufeland says that a long and frequent experience authorizes him to recommend the root and the plant of belladonna as a cure for obstinate intermittent fevers. In two cases in which the fever had continued for many months, and in which the quinquina and other means had been unsuccessfully employed, he finally gave the root of belladonna, in the dose of one grain morning and night, and at the same time ½ drachm of the extract of chelidonium daily. In less than eight days the fever ceased and did not again reappear. —*Bull. des Sc. Med. June,* 1830, *from the Journal der Pract. Heilkunde, Dec.* 1829.

25. *Employment of Belladonna in Hooping-cough.*—Notwithstanding all that has been said against the use of belladonna in hooping-cough, Dr. Miquel of Neuerhaus, says that it is a remedy upon which he can always depend in this disease. In the course of many epidemics, which he has observed during fifteen years, he has constantly cured the cough in eight days, by the use of this article. But he is obliged to administer it with certain precautions; thus, in cases of plethora, of gastric disorder, he cures these states before prescribing the belladonna. Dr. M. prescribes the belladonna from the commencement if

there is no plethora; his experience has shown him that it is necessary to give it in increasing doses, until the signs of narcotism begin to appear. Then without discontinuing its use, he lessens the doses, so that each dose occasions some slight agitation of three quarters of an hour, or an hour's duration. He says that no remedy loses its efficacy so quickly as the belladonna. When the root has been gathered a year, it may be given in the dose of two-thirds of a grain, repeated three times a day in children of two years of age, without any remarkable effect resulting.' The fresh root, on the contrary, acts very sensibly in the dose of an eighth of a grain.—*Archives Générales, August*, 1830, *from Archiv. fur Mediz. Erfahrung*, 1829.

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26. *Membranous Inflammation of the Cheek.*—The affection, according to M. GUERSENT, the distinguished physician of the Hôpital des Enfans, differs from the gangrena oris in being a much milder disease. It is more frequent in infancy than in adult age, on the right side of the mouth than the left. In the onset the mucous membrane of the cheek appears a little swollen, and beneath the epidermis there form little membranous patches, which run into one another, and spread over the cheek, the gums, the tongue, and the neighbouring parts. The glands of the neck are more or less enlarged, but as yet there is no ulceration of the cheek. In the second stage the cervical glands are more swollen, the face is tumid, the breath fetid, the layers of false membrane become detracted and assume a grayish colour, and a copious sero-sanguineous discharge adds to the miseries of the little patient. There is usually little fever, the pain varies in different subjects: the salivary secretion is abundant. In the third stage the disease proceeds more slowly, and may terminate either in gangrene or in resolution. If the latter, the sloughs having come away, the denuded surface is surrounded by a reddish areola, which contracts the sore from the circumference to the centre, whilst absoption appears to be at work on the border of the membranous exudations. In other instances, when the affected surface is extensive, absorption proceeds in various places, even from the commencement of the malady. The disease may disappear, and again return several times in the same individual. When the disease extends to the sub-mucous cellular membrane, it is liable to end in gangrene, but this never possesses the malignity, nor advances with the rapidity of the true gangrena oris.

The disease is seldom attended with danger, is not, in M. Guersent's opinion, contagious, is chiefly developed in children debilitated by chronic affections, bad food, or hospital air, often follows the small-pox, and other eruptive diseases, and appear to depend on a general alteration of the fluids. It seldom passes from the mouth to the pharynx, but one example of this kind was observed two years ago in the practice of M. Jadelot.

With respect to the treatment, topical applications only are important. If much pain is felt, and the glands of the neck are considerably enlarged, the employment of leeches is advantageous. A mixture of muriatic acid and honey in equal parts, or made stronger if necessary, is, according to M. Guersent, the best application. He is likewise very partial to the nitrate of silver, taking care not to break it in the infant's mouth. If other diseases co-exist with that under consideration, the general treatment must, of course, be adapted to the particular case.—*Med. Chir. Rev. Oct.* 1830, *from the Journal Hebdomadaire, No.* 91.

27. *On Diet.*—Deficiency of alimentation in patients, says M. CHARBONNIER, has serious inconveniences, numerous examples of which have been latterly observed, and we must say that a misconception of the elementary principle of physiological medicine has contributed to multiply them. Many practitioners having an imperfect knowledge of this theory, believe that we, (physiological physicians,) give a purely pathological meaning to irritation; and they endeavour to overcome irritation, in accordance with this prepossession, by depriving

their patients of all stimulants. These physicians are ignorant that according to our doctrine life cannot be maintained without a certain degree of this irritation, and that to know how to bring it back, and to restrain it at its healthy standard, is in our view to know the art of curing and preventing diseases. The alimentation of patients is doubtless an important object of consideration, and one for which it is difficult to prescribe general rules. It is here necessary to be guided entirely by the physiological state of the organs, and the action which modifiers exercise on them.—*Annales de la Medecine Physiologique, August*, 1830.

28. *New Mode of Administering Sulphate of Quinine in Intermittent Fevers.*—We find in the *Journal Universel* for June last, an interesting paper on this subject by J. P. Pointe, which originally appeared in the *Gazette de Santé.* The most valuable of all the preparations of the Peruvian bark is certainly the sulphate of quinine, but being the most active, it is extremely liable to excite too much the mucous membrane of the primæ viæ, and as this excitement in some cases may be productive of fatal results, in such instances its administration by the mouth is inadmissible. This inconvenience has led to the employment of the article to the corion of the skin, the cuticle being removed by a blister; this method is sometimes painful, and is said sometimes to have caused gangrenous sloughing of the part. Dr. Pointe proposes a new method of employing the article, by which all inconvenience he thinks is obviated. This method consists in applying the remedy to the gums and mucous surface of the lips by friction. He says that it has been employed in thirty cases with success· he relates six of these in the journal above alluded to, two of them communicated by Dr. Brachet. He says that if the bitter taste of the medicine should be very unpleasant to the patient, it may be to a degree obviated by gargling the mouth with an aromatic infusion immediately after the frictions.

29. *Tetanus cured by Injection of Opium into the Veins.*—MM. Percy and Laurent have cured three Russian soldiers affected with tetanus by injections of opium into the veins.—*Journal des Progrès, Vol. VII.* 1830.

30. *Tetanus cured by Injections of Datura Stramonium.*—Twenty-four grains of datura stramonium, dissolved in half an ounce of water, or a strong decoction of this plant, have been successfully injected into the veins in some cases of tetanus. According to MM. Percy and Laurent, the authors of these trials, the happy effects of this medication should be referred to the production of a kind of general paralysis favourable to the cure of this disease.—*Ibid.*

31. *Epistaxis.*—A very obstinate case of this is related in a late No. of the *Journal Hebdomadaire,* occurring in a man, aged seventy, affected with general scurvy. The hæmorrhage from the nose repeatedly recurred, though temporarily arrested, and all other means having failed, it became necessary, the patient having become almost exsanguineous, to plug up the nose and posterior opening into the fauces. Even this, however, did not permanently arrest the hæmorrhage, the blood after a short time flowed in uninterrupted jets through the two right lachrymal puncta. This was arrested by slight pressure continued for a short time.

32. *Homöopathic Treatment of Diseases.*—Case I. A feeble emaciated woman, aged sixty-two years. She had suffered from repeated attacks of pneumonia and difficulty of respiration. In one of which there was burning heat, pain in the right breast, disturbed sleep, pain of the head and eyes, dilated pupil, flushed face, dry tongue, loathing of food, dryness of the mouth and fauces, hurried and oppressed respiration, with frequent cough. Dr. Rau prescribed the billionth part of a drop of the expressed juice of aconite, mixed with a drachm of water. In

half an hour's time she experienced a creeping sensation in the members, with a gentle perspiration upon the surface. The oppression was immediately relieved, the respiration became free, and about midnight, a warm perspiration diffused itself over the body, she slept quietly, and in the morning seized the doctor by the hand, and told him she was entirely well!!!

Case II. We shall now detail a case of nervous fever, which, from the symptoms, must be admitted by all to have been of a formidable character. The patient was a woman aged thirty-seven years, of spare habit and phthisical conformation. She was attacked with burning heat of the skin, violent pain of the head, darting of the muscles, loss of appetite, and general lassitude and uneasiness. She passed a sleepless night, and on the succeeding day, the head-ache had for the most part left her, but she complained of vertigo and constriction about the chest. Dr. Rau was called to her assistance in the evening. He found her sitting up in bed in a state of great inquietude. Her hands were tremulous, and in a constant state of involuntary motion, as in St. Vitus's dance. Her eye-lids were turned, her eyes swimming in tears, and her lips livid. She made frequent ineffectual efforts to expectorate, and her fauces appeared to be perfectly dry. Her chest was covered with numerous petechia. Her abdomen was tense and hard, although she had an operation in the morning, and the menstrual flux had been for the last twenty-four hours inordinately profuse. The extremities were cold, and the pulse scarcely perceptible. She could not reply when interrogated, but when asked repeatedly if she felt any pain, placed one hand to her back, and the other upon the chest, and made a full inspiration. Dr. Rau observing the general character of the symptoms, and their analogy with those excited by stramonium, ordered the billionth part of a drop of the expressed juice of that plant in two drachms of water. In the course of half an hour, consciousness and the power of speech were restored. She now complained only of weakness and swimming of the head, and did not remember any thing that had transpired. On the next morning she was found by her physician in a tranquil state, and had slept for several hours. She had not complained of much thirst and had taken a small quantity of milk. The tongue was covered with a yellowish incrustation, and was moist. The eyes were less suffused and mattery, the pupils were, however, widely dilated. While in the act of conversing, her eyelids became heavy, and she fell asleep. Her slumbers were, however, often interrupted, and there were frequent twitchings of the muscles of the face and extremities. These symptoms were considered the consequence of an inordinate action of the stramonium, consequently no other medicine was ordered. At mid-day, however, these soporose symptoms still continuing, a very minute dose of the expressed juice of the hyoscyamus was administered, and this woman was able, at the expiration of eight days from the period of her attack, to resume her ordinary occupations.

Case III. Adam Klipert was affected with dropsy, attended by the following symptoms. The whole body was inordinately swollen; he complained of heaviness of the head; his eyes were heavy; his tongue white; and his thirst extreme. He also felt oppressed about the stomach, experienced a griping pain about the navel whenever he felt an inclination to go to stool, and only passed a small quantity of yellowish slime. He was remarkably debilitated, complained of coldness of the whole body, had a frequent inclination to pass urine, without the ability to void more than a few drops. A single very minute dose of the tincture of black hellebore relieved all the symptoms in the course of a few days.

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33. *Hæmoptysis succeeded by Ulceration—Hectic Fever—Relieved by Iodine Inhalation.*—A female, aged thirty-four, of delicate form, with rather narrow, yet not an ill-formed chest, of fair complexion, with dark eyes and white teeth, the mother of several children, having been much debilitated by three miscarriages within the last two years, and suffering from a severe cough, consulted me in February of the present year. In the history of her case, she related that four years ago she first contracted a violent catarrhal cough, which had since con-

tinued always troublesome, with the exception of an intermission in the summer months; that in January she had coughed up blood to the amount of a teacupful; and from that time had been affected with constant cough, pains of the chest, with quickened and difficult respiration, frequent palpitation of the heart, inability to lie on the right side, and one very distinct paroxysm of hectic fever in the middle of the day, and a slighter one in the evening. There were copious night sweats; she was much wasted in flesh: the catamenia had been suspended two months: the pulse was 120; the animal heat 99°: the expectoration was in quantity about four ounces in the twenty-four hours, of a general puriform appearance, and gave a ring of colours in the optical experiment: the digestive functions were not much disturbed; but the urine deposited much lateritious sediment.

The following indications appeared from the stethoscope and percussion:—The voice was brought distinctly under the tube at the apex of the right lung, and there was obscure *gargouillement* at that part. The sound was dull at the upper part of the right lung, and very remarkably so on percussing the clavicle. The left lung was comparatively in a healthy state.

I prescribed a weak solution of iodine for the inhalation; internally, from one to two minims of the solution of acetate of morphia; and the following draught before rising in the morning:—℞. Magnes. sulphat. ʒi.; infus. rosæ, ℥xii.; Acidi hydrocyan. ♏i.; Syrupi tolutan. ʒi.—M. fiat haustus. The chest all round was washed night and morning with the compound vinegar lotion.

The diet was limited to boiled fish, vegetables, and farinaceous puddings. At the end of a few days she found herself improved, and particularly as to the greater facility of expectorating, more ease of chest, and better respiration. The cough, however, still being very irritable, I added conium to the inhalation.

The mitigation of the symptoms was now very obvious, and, at the end of a fortnight, the amendment was great: but about this period she took cold, and suffered severely for twenty-four hours from disorder of the bowels and from spasms which appeared to proceed from uterine irritation. The cough became more irritable: but otherwise the pulmonary symptoms were not aggravated. I changed the inhaling mixture for one consisting of conium and prussic acid. This indisposition soon yielded to treatment, and the iodine inhalation with conium was resumed, and with an increased proportion of iodine. At the end of a month her appearance was remarkably improved, and all the symptoms were relieved. The pulse was reduced to 80; the animal heat to 95°; the respiration appeared unembarrassed; the cough was comparatively slight; the sputa small in quantity, and much improved in character; there was no longer hectic fever; and the night sweats were much lessened. She had gained flesh, and some improvement of strength; yet she still complained of great debility.

She had been most attentive in the use of the inhalation three times a day, and extolled it as the source of her improvement. For the last week she had discontinued the morphia at night, and took no other medicine than the mild aperient draught occasionally. The most urgent symptoms being subdued, I now directed my attention to the improvement of the strength. I prescribed the following draught:—℞. Acidi hydrocyan. ♏i.; decoct. cinchon. ℥i.; mist. amygd. ℥ss.; aquæ menth. virid. ʒii.—M. fiat haustus bis die sumendus.

She was desired to use the inhalation only twice in the day. She took mild animal food each other day, and at dinner two ounces of old port in a tumbler of cold water. She continued the use of the vinegar lotion. She took carriage exercise when the weather was favourable, and walked out occasionally.

In another fortnight I prescribed a saline bark draught, omitting the hydrocyanic acid, and allowed her to take meat or poultry every day. She continued to amend regularly. The catamenia returned. Three months having elapsed, she had recovered so completely that no further treatment appeared to be necessary. For the last week she had inhaled only once a day. She improved in flesh, and was so much stronger, that she declared herself better in health altogether than she had been for six or seven years.

This lady having removed to a distant part of the country, I have no opportunity of ascertaining the present state of her chest by auscultation, but I have the satisfaction of hearing that she continues perfectly well.—*Scudamore on Inhalation of Various Medicines in Consumption, &c.*

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34. *Case of Habitual Asthma relieved by Inhalation.*—A gentleman, aged twenty-seven, slight in figure, and having that form of chest which is commonly called "pigeon-breasted," had been asthmatic from his infancy, and two years before the occasion of consulting me experienced a dangerous inflammation of the lungs, which had left him almost constantly suffering more or less from irritable cough, and especially in the winter season.

When I first saw the patient, he was evidently labouring under bronchitis The symptoms were very urgent, but wholly of a chronic character. The cough was extremely irritable; the bronchial secretion copious, viscid, of disagreeable odour, and of greenish colour. The respiration, always in some degree embarrassed, was now much hurried, in number 32 in the minute, and distressingly accelerated on going up stairs, although he ascended with much care. He complained of a sense of stricture and oppression of the chest, some sense of tightness in the trachea; had considerable difficulty in lying down in bed, and when he arose in the morning, the struggle to free the air passages from the secretion which had been collected during the night, was often so severe as to weaken and render him languid for the whole day. The pulse was 96; the animal heat 95°. On each side, the stethoscope indicated much mucous rale, and there was a considerable degree of resonance.

The digestive organs were not in a healthy state: the appetite was impaired, the bowels were irregular, the biliary secretion was deficient and vitiated, and the urine deposited much lateritious and mucous sediment. The patient was thin, and had the appearance of being worn and debilitated. He said that he always felt weary, languid, and wretched.

I prescribed internally at first mild aperients and alteratives, as preparatory to the use of the alkaline sarsaparilla mixture; the inhalation of iodine alone, or conjoined with conium, directing him to add the latter ingredient only when the cough was irritable, and further, that when the asthmatic embarrassment was troublesome, he should add some saturated tincture of stramonium. I desired him to wash the chest daily with the compound vinegar lotion; its application being followed by the use of the flesh-brush. The result of this treatment was perfectly satisfactory. He made the following report of the effects of the inhalation:—He used it regularly on first rising in the morning, sometimes before quitting his bed, and immediately obtained a facility of expectorating, which superseded the necessity of the usual cough, and prevented its taking place in any troublesome degree. The breathing was rendered easy, and the chest light and comfortable: a happy exchange, he said, for the feelings of oppression and restraint which formerly always affected the windpipe and the chest more or less severely. He repeated the inhalation in the middle of the day: for the most part, he employed the iodine mixture separately, as he conceived that it acted more strongly as an expectorant when thus used; although occasionally he found the advantage of adding the other ingredients.

On the further plan of invigorating the constitution of this patient, I took the earliest suitable opportunity of directing the use of a graduated shower-bath, and the employment of dumb-bells.

The permanent method of treatment then consisted of the use of the iodine inhalation every morning early, the occasional repetition of it during the day, the continuance of the tonic alterative, the sarsaparilla mixture, the shower-bath, &c.

Observations.—It could not be expected that so confirmed an asthmatic patient should acquire the possession of perfect health; but it is satisfactory to report that the state of his chest was rendered, for the most part, very comfortable. He obtained every morning, by means of the inhalation, an effectual clearance of the bronchial tubes: By the use of the shower-bath, the ablution, friction, and dumb-bells, he gained a very marked increase of strength in the muscles of the chest, and in the body altogether; and his general health became equally amended.—*Ibid.*

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35. *Case of Spasmodic Asthma relieved by Inhalation of Ether, Conium, and Ipecacuanha.*—A married lady, aged thirty-six, had been subject to attacks of spasmodic asthma for some years past, from which she obtained relief by the use of antispasmodic and expectorant medicines; but her stomach was often disordered by their influence, and she had recourse to them with reluctance. I was desirous of trying the comparative power of inhalation, and prescribed, for this purpose, a mixture consisting of æther, conium, and ipecacuanha. I subjoin a statement of its effects in the words of the intelligent patient.

"I inhaled the medicated vapour during fifteen minutes before going to rest. The first sensations it occasioned me, were slight fatigue in breathing, and an aching pain in the breast, which, however, subsided by degrees; and when expectoration took place, which occurred copiously within half an hour after the inhalation, I felt completely relieved. Afterwards, in the course of the night, whenever I awoke, (instead of feeling the oppression and the difficulty of breathing which often distress me,) expectoration, without effort took place, and, breathing easily and freely, I then slept again immediately. Usually, whenever I awake with the sensation of tightness across the chest, I do not sleep for an hour or two afterwards.

"During two days after the inhalation, slight expectoration continued, and ever since, (now ten days,) my breathing, both night and day, has been perfectly free."—*Ibid.*

OPHTHALMOLOGY.

36. *On the Treatment of Amaurosis by Strychnine.*—In our last No. p. 243, we quoted some interesting observations by Mr. Middlemore, on this subject, and we are now able to add further confirmatory evidence of the utility of strychnine in amaurosis. Dr. Shortt relates in the *Edinburgh Medical and Surgical Journal* for October last, nine cases of amaurosis, eight of which were decidedly benefited by the use of strychnine, and in the ninth, which was complicated with deafness, although the vision was not restored, the hearing was much benefited. Dr. Shortt considers strychnine to act purely as a stimulant, either of the nervous matter of the nerves, or of the capillary system, and it is therefore only in cases of paralysis of the optic nerve, and those arising from congestion, that it can be advantageously employed. Dr. S. further observes, that in such cases, its beneficial operation is considerably aided by the previous use of mercury, possibly either by exciting the nervous system, by rousing the energy of the capillaries, or by increasing the powers of absorption, or by all three conjointly. Dr. S. observes, that he cannot positively say whether the effects of strychnine are lasting, but he believes it to be so if properly used; and he asserts that in no case in which he has tried it was vision injured where the disease existed in one eye only, or where sight was not entirely destroyed. In no case did constitutional evils arise from its use.

"In delicate persons," adds Dr. Shortt, "or where the system is affected by mercury, I ought to add, the strychnine should be commenced in small doses, *e. g.* not exceeding a quarter of a grain, and increased daily until it produces sensible effects on the constitution, such as head-ache, pricking pains over the body, or tremors, when it should be discontinued, and, on resuming it, the dose should always be considerably reduced. Where unpleasant symptoms arise, I can suppose that camphor in large doses, or an opiate enema, suited in strength to the violence of the symptoms and the constitution of the patient, or, as recommended by M. Lembert, the application of morphine in small doses, sprinkled on the blistered surfaces, will be found to give relief; but in no instance have I judged it necessary to employ any of them. Several of the cases here detailed were attacked with erysipelas, which strychnine seems prone to occasion; but they were invariably relieved by simply rubbing about a drachm of mild ointment or cold cream over the diseased surface every four hours. Mr. Fife, surgeon of the Eye Infirmary at Newcastle, has employed strychnine internally in several amaurotic cases, accounts of which he has had the kindness to send to me."

We select two or three of the cases related by Dr. Shortt.

"CASE I.—Peter Hamilton, æt. 22, an iron-founder, admitted 16th June, 1829, can only distinguish light from darkness. Both pupils are much dilated, the right more than the left. The iris in both is sensible to the stimulus of light. The eyes are clear, and, with the exception of a slight squint, present a natural appearance. This state of vision has continued two years. His account of its commencement is as follows:—

"Having been for some years daily working under exposure to the heat and light of an iron-founder's furnace, he became affected with indistinctness of vision, accompanied with flashes of light when looking at minute objects, or when stooping. This indistinctness became gradually more and more obscure for fifteen months. At the end of this time he could only distinguish light from darkness, and has remained in that state nine months. His general health had all along been quite good.

"*17th.* The temples were shaved and blistered, and one-eighth of a grain of strychnine dusted the following day on each side.

"*June 23d.* (6th day.) Within the last week a blister has been twice in succession applied to each temple, and to the raw surfaces, first one-eighth, then one-fourth, and to-day half a grain of the powder of strychnia. The pupils are less dilated, and the iris readily contractile; strabismus almost gone; tongue rather foul; bowels open.

"*25th.* Can to-day distinguish colours pretty readily, especially with the left eye, the iris of which is less sensible than that of the right. Half a grain was applied to each temple.

"*26th.* Still continues to improve, and can distinguish yellow and red colours; some head-ache, and tongue much loaded and white. Three-fourths of a grain to each surface; a cathartic mixture.

"*27th.* Less head-ache; sight considerably improved, for he can distinguish print from writing. One grain applied to each surface.

"*28th.* Vision more distinct. Had an additional grain and a quarter yesterday. Had 1½ on each surface.

"*July 2d.* (15th day.) Had 1¾ grains on the 30th. On the 1st, an attack of rigors, debility, sickness, vertigo, and head-ache, which are now gone, but feels weak. Can now clearly distinguish objects placed at the distance of some paces, and reads easily the hour upon a watch by evening twilight; iris of both eyes quite sensible. Intermit strychnine.

"*4th.* Sight still further improved. Renew the blisters, and one-fourth grain of the powder.

"*13th.* Can now distinguish objects clearly at considerable distances. Pupils continue more contracted, although less than naturally. Strychnia from one-fourth to three-fourths of a grain has been applied as before.

"*26th.* Strychnia has not been applied since last report, from a sensation of violent heat over the skin.

"*August 4th.* Since the last report two grains have been applied to each temple without any obvious effect; but improvement in vision continues.

"*16th.* Has had two grains on each temple for eight days. Repeat blisters, and apply 2½ grains to each surface.

"*September 8th.* (79th day.) Since the last report he has been applying the strychnia every day, from 2 to 3½ grains on each temple without any constitutional effect, but with continued improvement in his sight.

"There were some days of intermission, when the blisters were obliged to be renewed. Yesterday he left the Infirmary, and attempted to work; but finding that the act of stooping occasioned dimness of sight, he returned the next day and resumed the strychnine, to the extent of three grains on each temple, and continued gr. ijss. to the 13th. It was then omitted, and on the 31st, when he could see perfectly, he was ordered to apply the vapour of ammonia for a few days. The eyes appeared quite natural, the squinting gone; and he was enabled to tell the time upon the Tron Church clock from the Infirmary windows, at the distance of 300 yards.

"CASE V. James Rankine, admitted July 7th, 1830. Two years ago he was suddenly seized with deep-seated pain over the right eyebrow, accompanied with dimness of vision in the right eye, from a constant appearance of small floating objects before his sight. The pain in a short time disappeared, but the amaurotic symptoms continued increasing till fifteen months ago, since which time he has been unable to distinguish light from darkness, unless with a very small portion of the inner side of retina. The iris of the right eye is of a dark hazel colour, that of the left gray. Pupil moderately dilated and regular; slightly sensible to light. Posterior part of the eye has a greenish hue, has no pain in the eye.

"Three months ago symptoms of incipient amaurosis commenced in the left eye, (not, however, preceded by head-ache, or pain in the eyeball.) These have since gradually increased, so that he is now unable to read print of a large size at a moderate distance. There is a constant appearance of *musca volitantes* before his eyes, and these have occasionally a dazzling brightness, and at other times assume the appearance of a reticulated web. Pupil moderately dilated, regular, and sensible to light; the posterior part of the eye seems natural. Health good; other functions natural. Blisters, purging, and mercury have been used without relief.

"On admission, the application of extract of belladonna to eyebrows caused great dilatation of pupils, but considerable impairment of vision.

"Blisters were applied to the temples, and *Pulv. Strychniæ gr. v.* at three different times to their surfaces, without producing any sensible effect.

"*Pilulæ Submur. Hydrarg. c. Opio* were then administered till ptyalism was produced; and while the system was under the action of mercury, blisters were applied to the temples; but no change in vision took place, till on the application of one grain of strychnia to their surfaces, violent vertigo, head-ache, and other symptoms of its action were induced. Vision at the same time was greatly improved, so as to enable him to read common sized print. The appearance of *scotomata* in a great measure removed, and the iris of the right eye rendered more sensible to light.

"The *Pulv. Strychniæ* was subsequently applied with the same effect in a slighter degree, and vision continued improving in the left eye, when, being a farm-servant, he was obliged to return to his work, and was dismissed by desire on the 24th July.

"CASE VII. Walter Henderson, æt. 43, admitted June 3d, 1830. Has had for twenty-two years almost perfect amaurosis of his right eye, a small portion only of the retina remaining sensible to light. It commenced after an attack of iritis, which was removed by the usual antiphlogistic remedies; but the symptoms of amaurosis continued increasing; and in a short time attained its present state. The iris is of a dark-brown colour, and insensible to light. Pupil moderately dilated, and irregular; posterior part of the retina has a greenish hue; has no pain in the eye.

"The left eye remained unaffected till two months ago, when the usual symptoms of amaurosis commenced in it, accompanied with those of iritis. The latter were removed by antiphlogistic treatment, but the amaurosis has continued still to increase. All objects appear to him covered with a dense mist, which at times has a dark-brown, at other times a light gray colour. It at first appeared in the form of *scotomata*, which have gradually increased so as to assume the above-mentioned appearance. Occasionally in the dark, flashes of light appear before his eyes. Is unable to read the largest print, and when walking the street constantly runs against obstacles which come in his way. Pupil is contracted, very irregular, and sluggish in contracting on exposure to light. The posterior part of the eye has a very slight greenish tinge; has no pain in the eye or head-ache; health good; other functions natural.

"After admission, the extract of belladonna was applied to the eyelids. By it the pupils were dilated, appeared very irregular, and vision at the same time much impaired. *Pil. Submur. Hydr. c. Opio*, were administered till slight ptyalism was induced, and a blister applied to each temple: but no change in the vision took place. One grain of *Pulv. Strychniæ* was sprinkled on the blistered surface without producing any sensible effect. Next day, however, on the application of two grains, slight head-ache, vertigo, and the usual symptoms produced by strychnia in a small degree, were induced. Vision in the left eye was at the same time considerably improved, so as to enable him to read print of a moderate size, and the cloudiness rendered much less dense. His system was again slightly affected with mercury. Blisters applied to his temples, and *Pulv. Strychniæ*, ij. grains, to their surfaces, which in a short time produced vertigo, head-ache, slight tremors, and other constitutional effects. Vision was also greatly improved. Has, during the treatment, had slight attacks of iritis, which were always removed by the application of belladonna to eyelids.

"Reported as follows:—August 9th. Is able to read the smallest print. *Visus Nebulosus* almost completely removed. Pupil of left eye still small and irregular; that of right moderately dilated, regular, and sensible to light. No change in the vision."

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37. *New Operation for Ectropion.*—Dr. J. F. Dieffenbach, of Berlin, has described, in a late number of *Rusts Magazin*, the following operation for the permanent cure of everted eyelid. A semilunar incision is first made through the skin a few lines within the edge of the orbit. This incision is to be made directly in the centre of the lid, and should occupy about two-thirds of its extent. The lip of the wound next the tarsus is to be dissected up, so as to loosen a considerable portion of the everted tarsus, when the whole thickness of the lid is to be cut through to the extent of the external wound. A small pair of forceps being now introduced into the wound, that portion of the conjunctiva to which the tarsus is attached is to be drawn out at the external orifice, and the edges of the wound, together with the retracted conjunctiva, are to be held together by means of from three to five small needles, over which a thread is to be passed, as in the hair-lip suture.

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38. *Hebdomadal Intermittent Ophthalmia.*—M. Hueter relates in the 13th Vol. of the *Journal fur Chirurgie Augenheilkunde*, a case of ophthalmia which occurred regularly every eighth day, viz. every Friday. It commenced at two o'clock in the morning with violent pain, and terminated at night with an abundant flow of tears. The disease continued in this way upwards of a year. The subject of the case was a man aged upwards of thirty years.

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39. *Opacities of the Cornea.*—Dr. Shortt says that he is inclined to believe that in one or two instances strychnine applied for the cure of amaurosis was beneficial in removing opacities of the cornea, probably by its highly stimulating property occasioning rapid absorption.—*Ed. Med. and Surg. Journ. Oct.* 1830.

SURGERY.

40. *Excision of a Carious Rib.*—A shoemaker, aged thirty-eight, was admitted into La Charité, on the 23d of March, with a fistulous opening on the right side of the chest, leading down to the fifth rib. The latter, when examined by the probe, felt rough, denuded, and carious. A considerable quantity of puriform matter was discharged from the fistulous opening; the patient was debilitated, thin, and suffered from a troublesome cough, with expectoration of thick mucous sputa; but no positive sign of phthisis pulmonalis was present.

On the 24th of April, M. Roux proceeded to remove the rib. All the soft parts covering it were included between two semi-elliptical incisions, extending from the border of the axilla to near the sternum, and passing immediately under the mamma. By these incisions and the removal of the integuments included between them, the rib was exposed for the extent of five inches; the limits of the carious portion ascertained, and the latter, four inches in length, cut out by means of the chain saw; another small portion near the sternum presenting a suspicious appearance was also taken away. The pleura costalis adhered as usual to the inferior border of the bone, but above it was thrust inwards by a moderate collection of pus, which had no communication with the pleural cavity. The rib was quite carious, the superior border in particular and the internal surface being rough, deprived of its superficial laminæ, and chiefly affected about midway between its two extremities. The wound was simply dressed, and for two or three days the patient appeared to be doing well. Then, however, dyspnœa and symptoms of pleuritis on the right side appeared, and death speedily supervened.

Sectio Cadaveris.—The right side of the chest contained a considerable quantity of sero-purulent fluid with some flakes of recent lymph. The fluid was confined to the two lower thirds of the pleural cavity, the upper being closed from old and firm adhesions. The upper part of the lung contained many large and half-softened tubercles, principally situated opposite the second, third, and fourth ribs, which were all carious and broke with the greatest facility. The pleura at this part still continued sound. The apex of both lungs was loaded with tubercles, chiefly of the granular kind; some of them were softened, others were not; there was nothing like a vomica. No disease was discoverable in other organs.

The reporter remarks that he is not aware of the operation having been performed more than once in France, which was by Richerand in 1818. The patient died. Joshua Aymar, a surgeon of Grenoble, twice excised several carious ribs with success. The first patient was a woman, forty years of age, in whom the eighth and ninth ribs were diseased; the second a captain, whose fifth, sixth, and seventh were affected. M. Cittadini has recently published five cases of successful excision of one or more ribs. In all he opened the cavity of the pleura, and one patient nearly died from the admission of air into it. In the present case of M. Roux's, the tubercles of the lungs must undoubtedly be considered as contributing essentially to the unfavourable character of the case and the fatal pleuritis. At the same time the result is calculated to point out the uncertainty that must always hang over this operation, and deter practitioners from engaging in it wantonly or without the most cautious deliberation. —*Med. Chir. Rev. Oct.* 1830, *from the Journal Hebdomadaire, No.* 86.

41. *Removal of a great part of the Lower Jaw.*—A country woman, aged twenty-seven, was admitted into La Charité, on the 1st of May, with a knobbed, irregular tumour of the gum and body of the lower jaw on the left side. It was hard in some parts, soft in others, and appeared to embrace both sides of the jaw from the symphysis of the chin to the last molar tooth. The mouth was distorted, the tongue pushed over to the opposite side, deglutition difficult, and the articulation of some words impaired. It had commenced with violent

pain in the teeth of the left side, which continued for several years without any permanent amendment. The maxillary tumour had been coming on for two years prior to her admission. On the 8th of May, M. Roux proceeded to remove the diseased portion of the jaw. He began the operation by thrusting the point of a straight bistoury through the cheek, about half an inch below the edge of the lower lip, prolonging the incision as far as the region of the os hyoides, and carrying it from thence in a curved direction to just below the projection of the left malar bone. A crescentic flap was thus formed, the convexity looking downwards, and the two extremities extending from the chin to the prominence of the cheek. The flap was detached from the subjacent parts by a rapid dissection from below upwards, by which the maxillary bone and the tumour were perfectly exposed. A common saw was then made to work upon the jaw between the right canine tooth and contiguous incisor, and with some little difficulty the bone was cut across. The other division was made a little before the last molar tooth, and beyond the limits of the disease, which was done with the chain saw. The diseased parts were soon dissected out, several small vessels secured, and the integuments brought together by seven separate sutures. All has hitherto done well, and the wound is now nearly healed.

On examining the tumour, it was found to consist of a fibrous mass, alternately reddish and white, enveloping all the portion of bone that had been removed. This had acquired a spongy texture and considerable size, resembling the medullary sarcoma, and communicating at intervals with the dental alveoli, the whole being encased in a thin envelope of firm consistence. The characteristic appearances were particularly well marked at the extremity of the excised bone corresponding to what remained attached to the ramus of the jaw, a circumstance calculated to inspire well founded dreads of the incomplete eradication of the disease. The reporter is of opinion that the disease began in the internal periosteum of the maxilla, and is fungoid and malignant in its nature.

The reporter remarks that M. Roux intends removing the remaining diseased part of the bone at a future opportunity. He thinks that an incision directed obliquely on the ramus will enable the chain saw to work easily and effectually. The reporter also eulogizes the idea of not dividing the angle of the lips as is usually done, but beginning the incision below.—*Ibid.*

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42. *Compound Fracture of the Forearm, with great bruising of the Soft Parts, successfully treated.* By W. Auchincloss, M. D.—James Connel, æt. 18, a collier, was admitted into the Glasgow Royal Infirmary, July 17, three hours after the accident. He had fallen from a cart passing along a rail-road in consequence of his right foot getting entangled in the spokes of one of the wheels. Four waggons, each containing 12 cwts. of coals, were said to have passed in succession over the right forearm, which lay extended across the edge of the road. The radius and ulna were fractured in several places about their middle, and the soft parts very much bruised and a little swollen. There was a wound an inch long on the outside. It was agreed, in consultation, to recommend amputation in this case, but to this measure the lad would not consent. The limb was therefore put up in splints, and otherwise treated as for simple fracture. Scarcely any fever ensued. The bandages, &c. were not removed during five weeks, at the end of which time the wound was found healed, and the bones perfectly united.

From the great degree of bruising of the soft parts, together with the comminution of the bones, caused by a heavy body passing over the limb, it was to be feared that in an attempt to save the arm in this case, the parts would have either sloughed, or the whole forearm been converted into a bag of pus. The only circumstance, which, in my opinion, prevented these consequences from taking place, was the uniform support given to the parts by the bandages and splints. In judging of the cure, however, it must be borne in mind that the lad was young and in the possession of excellent health. There is certainly no subject in the whole circle of surgery, in which a greater degree of judgment and skill is required, than in determining on the question of amputation in cases of compound fracture. When in doubt, we are imperatively called on to give the patient a chance. As in this instance, we not unfrequently meet with cases to succeed contrary to every expectation. The fact cannot be disputed that now much fewer limbs are condemned than was the case ten years ago.—*Glasgow Medical Journal, May,* 1830.

43. *Extirpation of a Large Tumour from behind the Lower Jaw.* By **Adam Martin, M. D.**—Jane Woolins, æt. 38, states that when a child, a small hard swelling was observed on the right side of her neck, under the base of the lower jaw. The ordinary domestic remedies for glandular affections had no influence upon it—on the contrary, it gradually increased, and when she was about eighteen years of age it had attained the size of a double fist. She afterwards got married, and gave birth to several healthy children. Her last confinement was about six years ago. At this period, the tumour, which had been slowly enlarging, began to increase rapidly, and on the 18th of October last, its site and dimensions are thus described in my memorandum-book:—The upper part of the tumour is placed over the ramus of the jaw, almost on a level with the malar bone; it reaches about three inches before and two inches behind the ear, the tube of which is displaced upwards, whilst its lobe is pulled down and stretched over the surface of the swelling. It is attached to the whole side of the neck, being bounded before by the trachea—backwards it extends considerably beyond the sterno-mastoid muscle, and below it rests upon and projects over the acromion process. The mouth cannot be fully opened, and a large lobule can be felt under the root and side of the tongue. The skin is much stretched on all sides of the tumour, is very thin, and in general moveable over the surface, which is knobby, hard, and streaked with veins. From the ear to the apex of the tumour it measures nine and a half inches; and from the mastoid process to the base close by the trachea, ten inches. Its circumference round the base is eighteen inches, and round the apex twenty inches. The patient feels giddy and confused, and has constant and frequently severe head-ache. Within the last twelve months she has been seized with epileptic fits, in which she is violently convulsed. I had twice an opportunity of seeing her in this state—once while taking a cast of the tumour, and again when she called on me the night previous to the operation. The weight of the swelling, the immediate danger of the fits, and the probability of death from apoplexy at no distant period, rendered her situation very distressing. Mrs. Woolins had frequently been the subject of surgical treatment, once in a London hospital, and repeatedly under private practitioners. Nothing effectual, however, was done for her relief. She had applied to me several years ago, but, from the difficulty which I then experienced of obtaining assistants on whom I could depend, I at that time declined operating. Circumstances being now changed, and the symptoms being more urgent, on the 22d of October, assisted by Mr. Cunningham, surgeon, Royal Navy, and Mr. Henry Belfrage, I proceeded to the operation.

The patient being seated in bed, and the tumour supported in such a way as to prevent its pressing on the vessels of the neck, and thus inducing a fit, an oblique incision passing below the ear was made from the back part of the tumour to the trachea. The skin, together with the ear was dissected up as far as possible, and the removal of the tumour commenced from above. A portion of it was found to dip deeply behind the ramus of the jaw, and to occupy the place of the parotid gland, which was partially absorbed. Strong ligamentous bands passing from the base of the jaw were next divided, and by cutting on the tumour, that part of it which extended under the bone close by the tongue, was easily separated. A second incision, uniting with the first at its extremities, and preserving a considerable flap of healthy skin, was next made at the lower part of the tumour, which after a little dissection was completely detached. The bag of the pharynx was now seen moving during deglutition, as well as the great vessels of the neck pulsating in the bottom of the wound. Although many arteries jetted vigorously on being divided, I was rather surprised to find that when my assistant's fingers were removed from them, only one required a ligature. But, as in a case of a similar tumour on which I had operated a few days before, hæmorrhage had come on after the wound was dressed, and had proved troublesome, in the present instance I stuffed the wound with lint. This was taken out in the course of the afternoon, and the edges brought in contact with stitches, compresses, and a bandage. The operation occupied twelve minutes. Every thing went on favourably; she slept comfortably; the pulse never exceeded 108; and a considerable part of the wound healed by the first intention. I may here be allowed to notice, that I have found plasters invariably prejudicial to the healing of wounds when applied in the first instance, and I think that stitches are productive of more good and less mischief than are usually ascribed to them. The manner, as well as frequency of dressing incised wounds, recommended by Mr. Syme in the 24th volume of this Journal, I have adopted for some time past, and have found it a great improvement on the former practice.

The patient was out at the end of a week, and returned home on the thirteenth day, with a superficial sore, not exceeding an inch in length. In the case to which I have already alluded, great difficulty of swallowing succeeded the operation for a few days. Of this Mrs. Woolins never complained. The tumour weighed four pounds four ounces and a half, was of a firm, almost cartilaginous consistence, and contained several cavities, filled with bloody and serous fluid. There were, however, no osseous depositions, several of which I met with in the other tumour, which was smaller, and occurred in an older person. Mrs. Woolins has been entirely free from fits since the operation; and the only inconvenience resulting from it is slight paralysis of the *orbicularis palpebrarum* and right angles of the mouth.—*Ed. Med. and Surg. Journ. July*, 1830.

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44. *Case of Excision of the lower Ends of the Bones of the Forearm.* By M. HUBLIER, M. D.—A woman, ætat. thirty-three, of a strong and healthy constitution, had her right wrist crushed between the pole of a heavy carriage and a wall. The hand was thrown back upon the forearm; the ulna was luxated forwards; it protruded an inch and a half through a wound, in a vertical direction, of about the same extent; but in a transverse direction from the ulna to the radius in the front of the joint, the wound was about four inches long: in the latter part the skin only was divided. The lower end of the radius was fractured transversely; the inferior portion, about eight or nine lines in length, was divided into two portions by a longitudinal fracture.

On the first day the wound was poulticed, and on the second the dislocation was reduced; on the tenth the patient was admitted into the hospital. She was free from fever, and could move without difficulty the arm and fingers. Her sufferings were apparently not great, notwithstanding the swollen and tense state of the injured parts. A crepitus was easily detected, but it was difficult to judge of the position of the fractures. The limb was covered with poultice, and placed in a bath, morning and evening, for an hour, until the nineteenth. The inflammation and tension had now subsided, and the precise nature of the injury was consequently more evident.

For the last two days the limb had been œdematous, the wound and adjoining parts highly sensible, and there was a profuse discharge of pus, arising from the cellular membrane, and caries of the fractured bones: fingers deprived of motion; disturbed sleep; great agitation; fever; anorexia. From the continuance of such symptoms, it was apprehended that the patient would lose her limb, if not her life. A prompt decision was required as to the means to be pursued. Most authorities advise amputation in such cases; but as the soft parts still appeared healthy, it was determined to attempt to save the hand, by removing the lower ends of the bones. This novel operation at the wrist presented many difficulties: there was a large wound, with ragged edges; the parts contused; four portions of bone to extract, three of which were distant from the opening through which they were to be removed, and the tendons and radial artery to be avoided. M. Gallot, the principal surgeon of the hospital, having approved of the proposal, it was thus carried into effect.

The ulna being separated from the surrounding parts, was made to protrude at the anterior wound. A splint was placed beneath this bone, and it was sawn asunder about fifteen lines from its lower end. Behind this opening, an incision of the same extent was made, which, by joining it inferiorly, formed a triangular flap, the base being turned upwards. By this means the radius was made to protrude with more facility, and it was sawn asunder in the same manner and at the same height as the ulna. With a strong pair of dentated forceps, held in the left hand, the internal and lower protruded portion of the bone was grasped, and drawn out to stretch, and divide the ligaments more easily, which was done with a bistoury, the point and edge being turned towards the bone, to avoid wounding the tendons or radial artery, which lay under the external fractured portion. This was extracted in the same manner: a ligature was placed upon the ulnar artery. The wound was united by adhesive plaster, over which a compress of lint and a bandage were applied. The operation lasted one hour, but during it the patient was allowed occasional rest. The dressings were renewed on the second and following days, and, whenever they became dry, they were moistened with emollient fomentation, in which was a small quantity of camphorated spirits. Inflammation was thus diminished.

The patient left the hospital on the 6th December, perfectly cured. She had the power of moving all the fingers except the little one, which remained half bent. The wrist was not deformed, and it retained its relative position with the forearm. This woman has since resumed her ordinary occupation.—*Lond. Med. and Phys. Journ. from Archives Générales.*

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45. *Cure of Subcutaneous Nævus by the Seton.*—Mr. Fawdington, of Manchester, has published in the *North of England Medical and Surgical Journal* for August last, three cases of nævus cured by seton. He advises the remedy in cases where the size of the tumour precludes the use of the knife, caustic, or ligature, and states that it will be used with more success than tying the artery which supplies the tumour, and that it is followed by scarcely any disfigurement. The skein of thread should be large enough to fill up the apertures made by the needle, and thus to arrest hæmorrhage, and by using this precaution, a sufficient degree of irritation will be produced to excite inflammation and suppuration throughout the diseased mass. The first case was that of a fine male infant, about three years and a half old, who had a nævus between the angle of the jaw and mastoid process, extending upwards to the zygomatic arch. The whole formed an oval tumour, which measured five inches and a quarter in its long axis, and four inches transversely. It had no pulsation, was purplish, soft, and compressible, and had large veins on its surface. A skein of common sewing thread was passed through it with a sadler's needle, and no dressings were applied. On the third day the tumour was inflamed, and on the sixth in a state of suppuration; on the tenth resembled the site of an abscess or common boil, and at one part but a portion of the tumour remained, through which a seton was passed with similar results. In four months there was not a vestige of the original disease.

The second case was one of an infant of ten months old, who had a nævus on the forehead. A seton partially removed it; a solution of sulphate of copper was applied, which produced inflammation and suppuration, but a second seton was required to complete the cure.—*Lond. Med. and Surg. Journ. Sept.* 1830.

46. *Inflammation of the Hernial Sac.*—Among the various tumours which appear in the groin, there is one which deserves attention, and which has recently been made the subject of a memoir by M. Duparc. This species of tumour is constituted by inflammation of a hernial sac, causing adhesions to the neighbouring parts, the intestine not being implicated. It arises in the following manner:—After compression by the unskilful application of a bandage, or from the dragging of the parts, the hernial sac inflames, and diminishes the diameter of the opening through which the intestine or omentum passes: these parts are thus kept in the abdomen. The inflammation continuing, the opening is obliterated; a certain quantity of serum is thrown out, and, from the swelling which arises, the local and general characters of the disease may be mistaken for those of a phlegmonous abscess, or rather a strangulated hernia. This termination, which ensures the radical cure of the hernia, is very uncommon, and therefore the following case cannot be devoid of interest.

A woman, ætat. forty-five, had had a crural hernia on the right side for five years. It was originally produced by violent exertion. The tumour was easily reduced, and a month before her admission it disappeared entirely. From this period the patient experienced pain and inconvenience in the inguinal region, but there was no tumefaction. Fifteen days after, a swelling appeared of a red colour, accompanied by fever. A physician was consulted, and, suspecting the patient was ruptured, he sent her to the Hôtel Dieu. The tumour was of the size and shape of a hen's egg: it adhered to the crural arch, and was with difficulty moved. Although it was not hard, it had a certain feeling of resistance, and fluctuation in it was evident; the skin was red, and the cellular tissue engorged. The tumour had not increased in size since its appearance: the bowels were regularly open: there was no hiccup, nausea, or vomiting; pulse hard and quick. The diagnosis was somewhat difficult: it was not easy to determine whether it was an abscess or an obstructed hernia, "*hernie avec engouement*"

As no mischief could arise from making an incision into the parts, with as much care as if it had certainly been a case of hernia, and as there was a manifest fluctuation, M. Sanson determined upon this expedient. When he had cut down to the sac, a fluid was detected within it, and it was still believed to be a hernia: but the surgeon was quickly undeceived by the large quantity of serum which escaped from the wound, and by the shrinking of the tumour. The opening having been enlarged, and a finger introduced, no communication with the abdomen was found. It was a well-polished sac, without any opening, extending towards the obliterated crural aperture. M. Sanson and M. Dupuytren had seen many similar cases. Lint was introduced into the cyst, to cause adhesion of its sides, and the same dressing was continued until the wound was nearly healed, the patient remaining radically cured of her rupture.—*Ibid. from the Journal Complémentaire.*

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47. *Ununited Fracture of the Femur successfully treated by the Seton.*—The evidences of the value of this mode of treating ununited fracture, are constantly accumulating. In the *London Medical and Surgical Journal* for December last, the following case is related by John Swift, Esq. A healthy young man, aged twenty-eight, a labourer, was admitted into the Richmond Hospital, Dublin, on the 18th of January, with a false joint, formed at the junction of the middle and lower thirds of the femur. He stated that about two years and a half since, he had his thigh bone broken by a horse which he rode falling on him. The fracture was simple, but very oblique, and the shortening of the member considerable. In some short time after the accident, he went into one of the provincial hospitals, where the limb was kept in the extended position on a softish bed, for two months. When allowed to get up, [illegible] found that the first time he attempted to bear his weight on the limb, the fractured portions were not united. He was again confined to bed in the same position for three

months, at the end of which no union had taken place, and he was permitted to walk about on crutches, and discharged, after twelve months confiement in hospital, with a false joint. He had been in Stevens's Hospital subsequently some months, and had glue bandages and splints applied, and was put under the influence of mercury with some benefit. A seton was passed between the fragments, which was followed by considerable inflammation, and a copious discharge. At the end of a month it was removed, a complete union having taken place, and in a few days the patient began to bear gently on the limb, [illegible] was discharged cured, about six weeks after his admission. He returned again on the 10th of July, with the limb flexible, in the situation of the fracture, and unable to sustain his weight. He stated that being discharged, he employed it very much in digging and walking, being, as he expressed himself, so prond of his recovery, that he thought he could not use the limb often enough. By the aid of rest, full diet, a glue bandage, splints along the limb, and the iodine lotion, the thigh is becoming gradually firmer. He is at present walking about with the assistance of a stick.

We may here remark, that in enumerating in our last No. the cases of ununited fractures successfully treated by the seton, we omitted to notice a case of ununited fracture of the humerus, cured by this measure, related by Dr. Robert Baxter, in the New England Journal of Medicine, Vol. VII. p. 150.

It must be truly gratifying to the ingenious surgeon who devised this mode of treatment, to learn the success which has so frequently attended its employment, and the amount of human suffering, which has thereby been saved.

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48. *Internal Strangulation of the Intestines.*—The presence of a tumour in the abdomen after the reduction of a hernia, and the continuance of the symptoms of strangulation, point out the existence of an internal strangulation. M. Sanson gave some cases of this description to the Medical Society of Paris which are worthy of notice. In two of the cases the patients had reduced their herniæ before they applied to him, but the symptoms of strangulation continued, and a tumour was perceptible to the touch immediately above the abdominal ring. M. S. laid bare the ring, seized the tumour in the abdomen and drew it into view, when the release from the stricture was readily effected. In another case in which all the usual signs of strangulation were present, an operation was performed. The hernia was external. When the ring and the sac were divided the enclosed gut presented nothing particular, and M. Sanson returned the bowel, but found great difficulty in this part of the operation. He found the intestine accumulate above the ring, and therefore introduced his finger into the canal, but could feel no obstruction. He perceived, however, that the finger did not penetrate into the cavity of the abdomen. He incised the ring still farther, and then discovered the cause of the accumulation of intestine. Above the ring he found the hernial sac was dilated into a pouch which communicated with the general cavity of the abdomen by means of a narrow aperture. This aperture was obliged to be enlarged before the complete reduction of the intestine could be effected. M. Gerdy related to the society a case almost exactly similar, which had occurred in his own practice, and required a similar operation.—*Transactions Medicales, July*, 1830.

49. *Removal of the Penis by Ligature.*—In our last number we described Professor Graefe's method of amputating the penis by the ligature, and alluded to some cases related by Dr. Michaelis, in the *Journal der Chirurgie und Augenheilkunde*, Band XIII. Stuck. 2, in which this operation had been successfully practised. We confess we cannot understand how a ligature can be placed on so sensible [illegible] with so little pain to the patient as is said to have been experienced [illegible] cases. We give an abstract of them as related in the Journal allu[illegible]

Case [illegible] A man aged twenty-nine, affected with a venereal ulcer of the glans, h[illegible] first recourse to a mercurial treatment, under which the disease rapidly disappeared, but it reappeared some months afterwards, and resisted every measure. The ulcer affected one-third of the glans, and penetrated as far as the fossa navicularis. The patient was a prey to a mercurial fever, which had reduced him to an extreme degree of emaciation. The mercurial affection was relieved, but the ulcer did not cease to advance. Finally at the end [illegible] year he went to Berlin, and applied to M. Graefe, who removed the [illegible] part by a ligature. He introduced into the urethra a silver sound, after [illegible] he strangled the penis immediately behind the corona glandis, by a ligature drawn very tight. The patient supported this operation with the utmost indifference. The same night the part beyond the ligature was insensible and the ligature could be drawn tighter without producing any pain. The second day the diseased part was detached, and the sound was withdrawn; the cure was rapid, and the patient left Berlin in about a month. Case II. was that of a man aged thirty-five years, with a carcinoma which occupied the half of the penis. The operation was performed as in the preceding case, and the patient suffered but little pain. At the end of twenty-four hours the strangulated part was removed. Case III. a man aged sixty-two, with carcinoma of the penis originating in the prepuce. No accident resulted from the operation [illegible] the wound cicatrized so promptly that the patient left the hospital on the tenth day. The fourth case was also one of carcinoma. It occupied nearly the whole of the penis. The patient was perfectly cured by the ligature in about fifteen days.

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50. *Amputation of the Knee Joint.*—M. Velpeau, one of the surgeons of La Pitié, has endeavoured to revive this operation, which has been abandoned by almost all modern surgeons. In an interesting memoir in the *Archives Générales* for September last, he asserts, that the objections which have been made to the operation have no real foundation, and that it is preferable to amputation of the thigh in every respect; that it is less dangerous and more easily performed than amputation through the condyles, as proposed and performed by Baron Larrey and M. Garigue, and that it affords all the advantages of amputation of the leg through the shaft of the bone. That the circular method is entirely applicable to it, is in fact the only suitable one, unless the flap method should be imperatively demanded by some special circumstance. That patients who suffer amputation at the knee joint can walk with a wooden leg, and are not obliged to have a cuish, (*cuissait.*) That this operation should be had recourse to in every case which would otherwise require amputation of the [illegible]

51. *Congenital Enlargement of the Tongue.*—Peter Meldrum, aged nineteen, was admitted into the Edinburgh Royal Infirmary, under the care of Mr. Liston, July 18th. The tongue is of a very large size, compressible and elastic, projects three or four inches from the lips, and fills completely the cavity of the mouth. It is of a dark brown hue, in some places livid; its surface is rough, at some points granulated, at others fissured, and at many traversed by large venous trunks. At the back part of the dorsum the papillæ are much enlarged, granulated points are numerous, and there are several plexuses of dilated blood-vessels immediately beneath the investing membrane. There is occasional bleeding from an ulcerated fissure near the centre of the dorsum, and also from the lateral parts of the projecting portion; in the latter situation several cicatrices are visible. Saliva flows in a continuous stream from the apex of the tumour. The lower jaw, which is much separated from the upper by the interposed tongue, is elongated and unusually narrow; the teeth, particularly the front ones, are placed at a distance from one another, are e[illegible]d with tartar, and project almost horizontally from their sockets. [illegible] is felt at the symphysis menti, as if the two portions of the jaw we[illegible] and the intervening space occupied by ligamentous or cartilaginous [illegible]

States that the enlargement is congenital, and that the [illegible] every three months to a much larger size than the present, and then gradually subsides;—that a periodical tumescence took place a short time before his admission, and that the tongue has now nearly regained its average size. The bleeding is most frequent and profuse when the swelling is greatest, and then too he suffers much pain in the part.

General health good. Articulation is very indistinct, and when attempted, [illegible]wieldy organ of speech does not undergo much movement; but the pa[illegible] readily understood by those accustomed to hear him, and is reported to [illegible]st occasionally [illegible] singing of Highland airs. He swallows, and even mas[illegible]tes, pretty freely.

Mr. Liston stated that from the periodical enlargement and diminution of the tongue, and the [illegible] tissue being evident in many parts of its surface, he considered the tu[illegible] be composed partly of a structure resembling that of aneurism by anastomosis, and to be throughout extremely vascular. He therefore would not attempt removal of any of the exuberant growth by incision, and resolved to intercept its vascular supply, and then perhaps to diminish the organ to the [illegible] by the employment of ligature.

On the 21st a ligature was applied to each of the lingual arteries, immediately be[illegible] apices of the cornua of the os hyoides. The dissections were deep and difficult, though not tedious. On one side an irregular branch of the external jugular vein was divided, but its hæmorrhage was easily arrested by compress, and did not impede the operation. Slight difficulty of deglutition was felt for two days afterwards. No immediate change in the tumour was perceptible, but by the 23d it was evidently diminished, and there was a distinct, though gradual, decrease for some days.

On the 27th the ligatures came away from the vessels. But the patient complained of severe pain during the night, and next day the tongue was swollen to about twice its former size. His pulse was 116, rather full, and his appetite impaired. There was also a very slight erythema round the wounds in the neck. Punctures with a lancet were made in the tongue, and by hot fomentation a considerable quantity of blood was abstracted; after which the pain and swelling greatly decreased.

30th. There is considerable swelling and redness of the integuments on the right [illegible] of the face, accompanied with little pain except on pressure. Tongue much [illegible] same as yesterday. Pulse 120, firm. Appetite improved. Passed the night restlessly.

He continued to suffer no small degree of pain in the fauces and tongue, and a[illegible] extremity of the latter there was an appearance of suppuration being about to [illegible]e place; but the part became discoloured, of a glazed appearance, and sloughing was soon established. In these circumstances Mr. Liston conceived that the projecting portion might be safely removed by ligatures, these being employed to assist the process which nature had just commenced. Accordingly they wer[illegible]lied on the 2d of August, and the patient suffered but little. On the [illegible] they were tightened, and again on the 5th. At that time he complained of no pain, and felt very comfortable; the isolated extremity of the tongue was almost sphacelated.

He now began to suffer acute pain in the wrist joints and hands; leeching and fomentation were employed, but suppuration quickly occurred; the abscesses were early opened. His pulse became frequent and weak. His quantity of wine was now increased, and as much nutriment given as possible. On the 7th, the portion of the tongue anterior to the ligatures was removed in a state of complete sphacelus, and on examination had evidently been exceedingly vascular. He continued easy during the night, but on the morning of the 8th became restl[illegible] moaned much; his pulse was 140, and almost imperceptible at the [illegible]athing became oppressed and accelerated. He sunk rapidly, a[illegible] hour after the visit.

On [illegible] bones of the tarsus, and the extremities of the radius and ulna, i[illegible], were found softened and deprived of periosteum, and matter was [illegible] amongst the ligaments. The cellular tissue round the base of the tongue, and amongst the deep muscles in the upper part of the neck, was extensively gangrenous, and infiltrated with bloody sanious [illegible]. Both lingual arteries were obliterated.—*London Medical Gazette, Nov.* 1830.

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52. *Tapping for Hydrocephalus.*—Dr. Conquest b[illegible]t forward at [illegible] tholomew's Hospital last night another case of water [illegible]e head, fro[illegible] he has withdrawn, by two operations, thirty ounces [illegible] At the fir[illegible] ration twelve ounces were taken away, and at the [illegible]nd eighteen. The c[illegible] is apparently well, the bones having nearly closed, [illegible]atient free from any evidence of disease, although before the operati[illegible]ts almost incessantly, and was altogether a most deplorable object. [illegible]t the most gratifying and important circumstance connected with the appearance of this infant, was that it gave him an opportunity of stating that the girl on whom he successfully operated last year continues in perfect health, not having a vestige of her former disease.—*Ibid.*

53. *Dislocation of the Hip reduced more than a month after the Accident.*—Mrs. M'Ewen, ætat. 23, was admitted into the Edinburgh Royal Infirmary, July 5th. The right lower extremity is shorter than the left by more than two inches; the toes are turned inwards, and the knee rests on the inner and lower part of the left thigh. The patient can move the limb freely forwards and inwards, but motion outwards and backwards is extremely limited, and attended with much pain. The head of the right femur can be distinctly felt lying on the dorsum ilii, and the trochanter major is placed near the anterior superior spinous process of the ilium. The hip and thigh are painful and much swollen, and are occasionally the seat of lancinating pain.

States that the limb acquired its present position upwards of a month ago, in consequence of its being pulled forcibly outwards from her body; at that time she was sensible of a jerking sensation in the thigh, and of a noise resembling that produced by sudden extension of the finger joints.

From the catamenia having appeared soon after her admission, reduction was delayed till the 9th. The pullies were applied, and on very slight extending force being employed, the head of the bone was easily removed from its unnatural situation into the acetabulum, by rotating the femur, and pushing its head downwards and forwards. Considering the duration of the displacement, the facility of reduction was remarkable, but may have been partially attributable to the patient having led an extremely dissipated life, and consequently possessing very little muscular power. A pad was placed between the knees, and a roller applied around them. During the night she had been extremely restless, getting frequently out of bed, and next morning the head of the bone was found to be again lodged on the dorsum of the ilium. Reduction was however accomplished with even greater facility than previously; the knees and ankles were bound firmly together, and the horizontal position strictly enjoined. No untoward circumstance afterwards occurred, and the patient was soon dismissed, enjoying the free use of her limb.—*London Medical Gazette, Oct.* 1830.

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54. *Aneurism of the Arteria Innominata; Operation of tying the Carotid. Sudden Death; singular Pathological Appearances.*—A female, aged sixty-one, observed in September, 1828, a pulsating tumour immediately above the right side of her sternum, which progressively enlarged. In April, 1830, it had enlarged so much anteriorly as to in some degree dislocate the right sterno-clavicular articulation; the tumour ascended behind the sterno-mastoid muscle, (which, with the jugular vein, was pushed a little outwards,) [illegible] of two inches above the clavicle, and extending outwards to [illegible] inches along that bone. The patient had some difficulty of breat[illegible]ainful numbness of the right arm. As she was very desirous that some [illegible]eans should be adopted, Mr. Key determined, as the only chance of av[illegible] otherwise sudden death, to tie the carotid artery, and, if necessary, the subclavian

also, at a subsequent period. The operation was accordingly performed at half-past one P. M. July 20th; it occupied fifteen minutes, and not more than half an ounce of blood was lost. The patient bore it without a murmur, and complained of pain only when the vessel was tied. At the instant of the liga-[illegible] being tightened, the tumour first fluttered in its beat, and then became d[illegible]ly smaller, both in bulk and in its force of pulsation. The artery at the wrist was not in the least affected, nor did the patient herself feel faint or [illegible], or in any way [illegible]oded by the operation; for she spoke cheerfully, and appeared as well as before its performance. This diminution in the bulk of the tumour, however, was not permanent, for, before she had left the theatre, it was nearly as large as previous to the operation, though its beat was certainly fainter.

The patient was immediately carried to bed, and appeared cheerful; her p[illegible]nety, rather sharp, but also irregular in its beat; the tumour as before the operation in bulk, but with a fainter and more irregular beat; her head was raised on a high pillow, and laid on the left side. She had not been in bed more than half an hour before she suddenly raised herself, gasped for breath, and called for something to drink; she then fell into a severe fit of coughing, which lasted, with little remission, for several minutes: her distress was such as to create an apprehension of instant dissolution from the rupture of the sac. She was, however, [illegible] to take a little ammonia, with ten drops of laudanum, which succeeded in quieting her immediately. Her back was supported by high pillows, and she was again quite calm. In about an hour and a half from the operation, she appeared to be asleep, her breathing was natural, attended only by a peculiar snore, which did not now attract notice, because it was habitual to her: this noise gradually became fainter, till at length it quite died away. She was thought to be in a comfortable sleep, and therefore not disturbed till about half-past five o'clock, when, on being seen, it was found that there was no pulse in the wrists, and that the heart was beating with a scarcely perceptible flutter. It was not possible to afford any relief, for in a few seconds more she died. From the time of the paroxysm of coughing she had not spoken, but appeared perfectly quiet, and died in the most calm, tranquil, and unconscious manner possible.

The body was examined twenty hours afterwards. Both pleuræ were natural appearance, but contained between them about a pint and a half of serous l. There was about four ounces of serum in the pericardium; there was no extravasation of blood any where; the sac was adherent to the upper part of the sternum, and adjacent part of the clavicle and first rib. These, together with the heart, left lung, and the soft parts in the neck, as far as the lower jaw, were now removed together, and a careful examination made.

The whole [illegible]h of the aorta, from the heart to its termination in the thoracic portion, was [illegible]uch dilated, and all its inner surface quite rough, with numerous ossifi[illegible]es spread on [illegible]: the heart itself was sound, and the semilunar valves nearly natural. Besides this, there arose a distinct sac from the right wall of the arteria innominata, and from the adjoining part of the arch, which was about the size of a small orange. This tumour had risen up on the neck, had pressed forwards the sterno-clavicular joint, had passed along the subclavian artery, and in less degree along the carotid, constituting the swelling which had been felt externally during life. This sac was more than half filled with laminæ of fibrin, in various degrees of consolidation. The carotid and subclavian arteries were both quite sound, and not at all involved in the disease. The part of the innominata near the bifurcation was also lined with ossific scales, [illegible] the aorta, and its opening much enlarged. The ligature was fairly on the c[illegible] two inches below its division.

Upon [illegible]g the dissection of the parts with a view to preparation, a most [illegible]cumstance was discovered, viz. the left carotid opened from the ar[illegible] aorta by an orifice scarcely large enough to admit a small probe. It appeared as if a membrane had formed across its original orifice, very nearly resembling the membrane over the foramen ovale in the septum of the auricles of the heart; but what is still more singular, is, that the carotid itself, from the aorta to the bifurcation, retained its natural caliber, though supplied entirely through a mouth scarcely one-tenth part of its natural size. There was no vessel whatever entering any part of this common carotid which could in [illegible] way have conveyed blood to it. At its division, the external carotid [illegible] of its natural size, but the internal became abruptly very small, almost [illegible]diately after its commencement. The interior of this [illegible] common [illegible] contained an adherent layer of fibrin similar to that [illegible] aneurismal sac, and not at all like the strings of fibrin ordinarily found in blood-vessels. This appeared to be a step towards the gradual obliteration of the artery.

The subclavian was of its usual size, and the vertebrals were rather small than otherwise on both sides; so that, when the right carotid was tied, [illegible] brain was so very much deprived of its supply of blood as to render it [illegible] to support the actions of life; and hence the quick and perfectly quiet dissolution which followed.

The brain was examined. It was found healthy; its vessels were quite sound, and contained the ordinary quantity of blood. There was a little serous effusion between the membranes.

The abdominal viscera were generally sound, except a small polypus in utero, which grew from just below the orifice of the left fallopian tube. The descending aorta was quite natural.—*Lond. Med. Gazette, Sept.* 1830.

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55. *Staphyloraphy, followed by Death.*—M. **Roux** operated for congenital division of the soft palate, at the *Hôpital de la Charité*, on the 28th of August last, for the fifty-first time. The patient, (a young girl,) was attacked the evening of the operation with pain in the throat, and cough followed by inflammation of the chest, which advanced so rapidly that the patient died eight days after the operation. Angina is a common result of the operation, but we believe that this is the first case in which the operation has terminated fatally. —*Lancette Française, Sept.* 1830.

MIDWIFERY.

56. *Deficient or Deranged Action in Parturition.*—Mr. James Wilson, of Glasgow, is of opinion that deficient or deranged uterine action is the chief cause of the delays and difficulties in parturition, and that for one case of protracted labour where the pelvis or the position of the head is in fault, there will be twenty occasioned by deficient or imperfect uterine action. The uterus is composed of two sets of fibres, one transverse, the other longitudinal, thus composing, as it were, two sets of muscles—and these are capable of acting either separately or in union, and thus, he says, is produced all the variety, as to time, difficulty, &c. experienced in child-birth. "The tendency of the transverse action when alone or predominant is merely to narrow and elongate the uterine cavity, whereas the tendency of the longitudinal action is to shorten the cavity by making the fundus and os uteri approximate, and thus to expel whatever is contained in it. This expulsive process, however, will be best effected, not when the longitudinal fibres act alone, but when they act powerfully, having at the same time the transverse action in a subordinate degree. Again, if the transverse fibres act alone, expulsion of the uterine contents never can take place. Transverse action may be general or partial, producing corresponding effects; if general, and the liquor amnii be [illegible] body of the child will be grasped at all points like a limb in a tight [illegible] no ordinary expulsive uterine efforts or extracting force used by [illegible] be capable of effecting delivery under these circumstances. In [illegible] this I submit the following case.

"In March, 1820, I was requested to see Mrs. ——, along with a medical friend. This case was one of ruptured uterus, which had taken place from violent uterine action about twelve hours before I saw it. The woman was evidently dying, so that our chief attention was directed to save the child; its head was completely in the pelvis, and well placed for the easy application of the forceps; and as it was possible it might be alive, it was deemed proper to give [illegible] chance by speedy delivery. The forceps were accordingly introduced [illegible] great ease, [illegible] most advantageously;' yet here, even *in articulo mortis*, so great was [illegible] power of the transverse action that all the force we could with propriety exert had not the smallest effect in bringing down the head, and after repeated but fruitless trials, the forceps was withdrawn. Immediately after death the Cæsarian section was performed; the abdomen was found [illegible] distended by internal hæmorrhage. The rupture of the uterus was transverse, and included all the posterior part of the cervix in front of the projection of the sacrum. No part of the child had escaped through this opening. The pelvis was capacious and well-formed. But the most striking feature in this inspection, was the firm and unusual transverse contraction of the uterus, round the body of the child. It had completely adapted itself to the inequalities of the child's surface, thus embracing it so powerfully as to form the only obstacle to the delivery, which had been experienced in the trials with the forceps. It may be objected to this that it was an extreme case; perhaps it was so, and on that very account it has been mentioned, in preference to many others of more frequent occurrence, but less prominent features.

"When we witness a case of transverse contraction so very powerful as to resist a force sufficient to rupture the uterus, for I hold this to have been the cause of the rupture—and further, when the patient was at the point of death from the rupture, and the consequent internal hæmorrhage; that this transverse contraction should still have remained unsubdued and resisted the strong efforts made with the forceps, we can be at no loss to conceive its frequent occurrence in a milder degree, but yet sufficiently powerful to make labour both painful, tedious and difficult. This contraction may be present, and form an obstacle in any [illegible] every stage of labour.

"When such a state of the uterus does exist, it is perhaps difficult to say what ought to be done for its removal. At first view bleeding and opium, as antispasmodics, seem indicated; but I am inclined to think, that this is not so much a spasmodic as a tonic permanent contraction, prematurely induced, and which neither opium nor blood-letting will remove; it forms not so much an active as a passive resistance to expulsive power. If the pains are doing no good, we may, by giving opium, suspend the fruitless action for a time, till the strength becomes recruited, when more vigorous expulsive efforts might reasonably be expected; or those who have confidence in the ergot of rye, might be induced to give it in order to [illegible] new force to the expulsive powers.

"But, 2dly, this undue action [illegible] the transverse fibres, instead of being general and tonic, [illegible] above case, may be partial and spasmodic, examples of which we have in what is called the encysted or sand-glass contraction of the uterus; every one has met with these cases, uterine hæmorrhage and retained placenta, have led to this discovery, and though not generally suspected, I have no doubt the very same state often exists while the child is in utero, proving a source of severe and protracted labour. Before birth we have not the same opportunity of detecting it as afterwards, yet, before the os uteri is fully dilated, such a state may be often felt in that part of the uterus within reach of the finger."—*Glasgow Medical Journal, May*, 1830.

57. *[illegible]tation.*—Dr. F. G. Wilmans relates in the *Journal der Prakt. He[illegible]* March, 1829, a case of this kind, which continued for fifteen [illegible] which terminated fortunately by the expulsion of the fœtus by the rectum [illegible] urinary bladder. During the interval the mother was delivered naturally of four children. She is still actually living.

MEDICAL JURISPRUDENCE.

58. *On the Poisonous Effects of Oxygen and some other Gases on the Animal Body.*—We have already noticed the series of very interesting experiments lately performed by Mr. Broughton on the effects of certain gases on animal life, and especially on the effects of oxygen, and we now give some further details. Oxygen gas has been long known to prove deleterious to animals [illegible] breathed in a state of purity. But by a singular coincidence it has happened that none of the experimentalists who have lately investigated the physiological operation of the gases, have paid any particular attention to the phenomena occasioned by the inhalation of oxygen. And it has consequently been left to Mr. Broughton to discover some extremely curious and peculiar circumstances connected with its action.

The gas for the experiments was prepared from black oxide of manganese by heat, and was collected in large glass jars over water. A platform was placed within the jar, on which the animal to be experimented on could be placed above the water; and when the temperature of the atmosphere was low, the whole apparatus was kept at a moderate heat before a large fire. Comparative experiments were made with common air in circumstances precisely similar.

Mr Broughton first remarked, as others had done, that animals die much sooner in atmospheric air than in oxygen. He farther observed, that after an animal had died in common air, the residual air extinguished flame and destroyed another animal in a few seconds, but that in the residual gas, in a jar with an animal had breathed oxygen till it died, another animal lived a long time, and the combustion of a match was brilliantly enlivened. His experiments with oxygen are eleven in number; and the animals with [illegible] they were performed were the kitten, rabbit, guinea-pig, and sparrow. [illegible] commonly remarked that no apparent change occurs for the first hour; then the breathing and pulse become accelerated; afterwards a state of debility supervenes: and gradually insensibility comes on, with glazing of the eyes, slow respiration, and sometimes gasping If at this stage of the experiment the animal be removed into the atmosphere, it speedily recovers; and even if the respiration have ceased altogether before its removal, recovery may be accomplished by artificially inflating the lungs. In a vessel of the capacity of one gallon, three hours were sufficient to bring most animals into a state of great danger, and few recovered after being confined five hours. When the body was examined soon after respiration had ceased, and when life was consequently to all outward appearance extinct, the heart was always found contracting vigorously, the whole blood of the body, both in the veins and arteries, was brightly arterial, and many of the membranous surfaces, but especially that of the lungs, were of the same florid red tint. [illegible] may extract the following experiments as good examples of the whole. *Experiments i. and ii.* "A kitten ten or twelve days old was immersed in pure oxygen, and suffered no apparent inconvenience during the first hour, but afterwards its respirations were quickened, and the sanguiferous system was much accelerated. To this succeeded a state of debility, and gradually a total insensibility." This animal recovered on being removed at the end of three hours. A second of the same breed "was not removed until the motion of the diaphragm, ([illegible] last organ in which movement is perceptible,) had ceased some minutes, [illegible] did not become re-animated. On opening the chest, *the heart was found beating strongly; and after its removal forcibly contracted on the knife when cut across.* Throughout the brain and every part of the body *no trace of venous blood was discoverable*, but every where the arteries and veins universally carried *scarlet* blood [illegible] as both divisions of the heart, which exhibited the internal structure [illegible] be entirely of a bright florid colour; and the surface of the lungs appeared [illegible] if highly injected with vermilion." *Experiment vii.* "A rabbit about three [illegible] old was immersed in about two gallons of oxygen, at half-past eleven in the forenoon.

At three o'clock the animal was still apparently lively and unaffected, and it ate some oats and cabbage, introduced through the water under the glass. At seven the animal's breathing was quickened, but it showed no signs of insensibility; [illegible] until nearly eleven o'clock was it apparently much affected, when some degree of stupor and weakness was evident. At twelve o'clock at night, twelve hours and a half after its immersion, it was in a sitting posture, breathing [illegible]ick, and somewhat dull in appearance. In this state it was left, the fire [illegible]owed to go out, [illegible] the bath to cool down to the temperature of the room on a frosty night; [illegible] in the morning it was found dead. On opening the body, the heart and blood-vessels universally contained scarlet blood. During this experiment, as the water rose in the jar, about two or three pints of oxygen were added. A flame was excited in a blown-out taper, introduced into the jar; and a mouse breathed some time in it." *Experiment xi.* "A rabbit about three [illegible] four weeks old was immersed in a gallon of fresh oxygen at one o'clock P. M. In about an hour its respiration was quickened, and in two hours it was very weak, and apparently losing its sensibility. Nearly a quart of oxygen was added during the experiment, to make up for the rising of the water. About seven, having been in the gas nearly six hours, it was convulsed and expired, and was removed in five minutes without any sign of motion. On opening the chest the heart was in full action, and the diaphragm still. No venous blood was perceptible. The gas remaining after the experiment rekindled a blown-out taper.—N. B. In all these experiments the surface of the lungs appeared much injected. The blood also was observed to be very transparent, and to coagulate remarkably quick. The right side of the heart was always much more [illegible]ed than the left."

The[illegible] experiments show how erroneous were the results obtained by one of the la[illegible] experimentalists on the subject, Sir H. Davy, who inferred that the fatal [illegible]ts are independent of excess of oxygen. Mr. Broughton shows clearly that pure oxygen acts as a narcotic poison, that it induces a universal arterialized state of the blood, and excites symptoms of severe nervous derangement. Its action exhibits the singular phenomenon of the heart being the last organ in the body to die, and yet circulating arterial blood. The contractility of the intestinal canal also continues long after the functions of the brain are annihilated.

The other gases with which he experimented were nitrous oxide, nitrogen, chlorine, sulphuretted hydrogen, hydrogen, carburetted hydrogen, nitric oxide and carbonic acid gas.—*Nitrous oxide gas* had precisely the same effects as oxygen; but acted with much greater rapidity. A kitten was killed in half an hour, sparrows in four or five minutes, mice in about eight minutes; but a rabbit three weeks old lived two hours and a quarter. In every case the heart was found contracting strongly after death, and the blood was florid in the veins as well as the arteries.—In *Chlorine* all animals were killed in about thirty seconds. The only important fact in Mr. Broughton's experiments with it is, that the lungs presented the yellow tint and peculiar odour of the gas; so that, contrary to what is usually thought, chlorine passes the epiglottis. In his experiments with *Hydrogen*, which proved fatal in half a minute, he found that immediately after death the heart and intestines did not retain their contractility, and he therefore concludes that this gas is a positive poison, and not merely an asphyxiating gas.—*Carb[illegible]tted-hydrogen*, (but he has forgotten to say which species,) acted with great rapidity, causing one or two gasps and stupor in a few seconds. The experiments with azote, sulphuretted-hydrogen, nitric oxide, and carbonic acid gas present no particular novelty. Mr. Broughton seems to infer from his own observations that carbonic acid is injurious, merely because oxygen [illegible], but the experiments of Collard de Martigny prove that it is a positive po[illegible] the narcotic class.—*Quarterly Journal of Science, Literature, and Art,* [illegible]30.

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59. *Case of Fracture of the Spleen.*—A woman who had been a long time af-

fected with intermittent fever, was struck in a quarrel, by her husband, with a long and elastic switch. Two hours afterwards she died. The blow was given over the region of the spleen, where, however, there was no mark of violence. On post mortem examination the spleen was found torn and blood extravasated in the abdomen. The spleen, as also the liver and stomach, were so soft that a slight pressure sufficed to tear them. This predisposition was taken into consideration in the judgment of the husband, and the death of his wife declared to be accidental.—*Bull. des Sc. Med. July*, 1830, *from Rust's Magazin, t. xxxi.*

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60. *Poisoning with Empyreumatic Oil of Hartshorn.*—M. Duret relates the following case in the *Journal Universel* for Nov. 1829. A widow aged thirty, after unsuccessfully endeavouring to procure arsenic swallowed an ounce and a half of the empyreumatic oil of hartshorn. No one witnessed the symptoms which resulted, but it appears that she vomited copiously, had drunk a great deal of water, but finding the effects of the poison not so speedy or supportable as she desired, had put an end to her sufferings by jumping into a well. The dead body exhaled the peculiar fœtid odour of the oil. The lips were pale, as well as the lining membrane of the palate and tongue, which was hard, shrivelled, and on the edge thin and fringed. The velum, pharynx, and gullet presented the same colour and shrivellry. The stomach was full of liquid—externally it had a diffuse red tint, crossed by numerous, distended black veins, which here and there had burst, and caused small circumscribed patches of extravasation. The liquid contained in the stomach consisted of remains of food, water, a considerable quantity of the poison, and some extravasated blood. The villous coat had a punctated redness, was unnaturally thick, and presented very prominent rugæ, but no appearance of erosion. The intestines were also inflamed, but to a less degree than the stomach. In a case of poisoning by the *rectified* empyreumatic oil, related by Chaussier in the *Dictionnaire des Sc. Med. Tom. XVI. p.* 605, it is stated, that death ensued instantly on the taking of a table-spoonful of the poison, and that no morbid appearances could be discovered in the dead body. The poison thus acted as a most powerful narcotic, whilst in the case above related it acted as an acrid poison.

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61. *Murder by Poisoning with the Nitric Acid*—Although voluntary and accidental poisoning with mineral acids is exceedingly common, few instances are on record where the murderer has had recourse to these poisons, because their intense acid taste and instantaneous corrosive action render it extremely difficult, and at first view one would suppose impossible to administer them secretly. The two following judicial cases are therefore of much interest on account of their rarity.

The first is an instance of *an Attempt to Murder by administering Nitric Acid,* which came lately before the court of assizes at Paris. A man Groubel, who lived on very bad terms with his wife, filled her excessively drunk one evening at the village of Boulogne, near Paris. At half past eight the same evening, (October,) they were seen together on their way towards the Bois de Boulogne: and next morning the dead body of the woman was found on the road side. MM. Ollivier and Chevallier were requested by the authorities to examine it.

Her dress was disordered. Her cap and an under waistcoat were corroded and stained, and particularly the collar and sleeves of the latter. The stains were yellow. Three similar stains were found on her petticoat. The face was pale, but much discoloured, of a lemon-yellow tint, particularly on the right side, by a fluid which issued from the angles of the mouth. Several locks of hair were similarly discoloured. At the left side of the neck, towards the back and corresponding with the deepest stain on the waistcoat, there was a grayish superficial eschar surrounded by some reddish excoriations. On various parts of the forehead, on the right side of the nose, behind the right ear, and on the right side of the neck near the front, there were several excoriations, exactly such as those made by finger nails; and two on the neck were accompanied with slight ecchymosis. Several ecchymosed spots were also found on the back of the head, on the back of the right shoulder, and on the outer part of the right forearm. On the forepart of the same forearm three grayish, superficial eschars were seen, exactly like that on the neck. *The hands were not at all stained.* The whole inside of the mouth was of a deep lemon-yellow colour; the fine skin of the lips excoriated; that of the tongue shrivelled. The pharynx was full of bloody mucus and also yellow, which colour farther affected the upper quarter of the gullet, but became less and less distinct downwards. The lower part of the gullet and the whole stomach were healthy, and the latter was filled with half-digested food and much wine. The larynx, trachea, and bronchi, were healthy, their mucous membrane white; but both lungs had a blackish or violet colour; the left was scarcely crepitant at its upper portion, and very hard, red, and hepatized at its lower part, with tubercles in the centre of the hepatization, and it yielded a great quantity of black fluid blood when cut into; the right was less strongly hepatized, but equally full of fluid blood. The heart was soft and flaccid, and its cavities contained much fluid dark blood. The brain was much injected, and the veins gorged.

The stains on the clothes were analyzed in the following manner. Litmus paper was strongly reddened by them. When a portion of the stained cloth was immersed in distilled water, the water became acid, and when this was neutralized with bicarbonate of potass, and concentrated, a piece of paper immersed in the solution and dried, burnt with a sparkling redness, like match-paper. Another portion of the liquid evaporated to dryness, and treated with a little concentrated sulphuric acid, gave out fumes of nitric acid. Another portion evaporated to dryness, and projected on burning charcoal, caused deflagration. The stains of the skin and hair were subjected to the same process, and [illegible] the same results. A portion of the yellow stain, when treated with caustic potash, became reddish-yellow. These experiments left no doubt that the stains on the body and clothes were caused by nitric acid. The contents of the stomach were carefully analyzed in like manner, but no nitric acid could be detected in them.

The prisoner being arrested about the time when the body was examined, the medical inspectors requested to be allowed to examine him; upon which several yellow stains were found on his coat, trowsers, and hands. These stains were analyzed in the same manner with those found on the woman's clothes and body, and nitric acid was detected in them.

The opinion of MM. Ollivier and Chevallier was, that the woman did not poison herself—that an attempt had been made to make her swallow nitric acid, which, however, she had rejected before it reached the stomach—that she did not die of poison—and that in all probability she had been suffocated by the hands applied on the neck and over the mouth and nose. The want of stains on the woman's hands, with the abundance of them on other parts of the body, justified the conclusion that she did not take the poison herself. The entire state of the alimentary canal, they conceive, also bears out the inference, that she did not die of the poison; but here it appears to us that more care should have been taken to determine that the glottis did not suffer so as to produce death by suffocation. That she was smothered or choked they consider as rendered highly probable by the scratches round the mouth and on the neck, by the gorged state of the lungs, and black fluid condition of the blood. Lastly, they give their opinion that the prisoner was the person who administered the poison, and subsequently choked her; and they appeal in proof of this to the stains on his clothes, but more particularly on the palms of his hands.

The whole case is an exceedingly instructive example of the advantage to be derived in obscure crimes from a thorough medico-legal investigation by competent persons. In support of the doubts we have expressed whether the woman might not have died of suffocation from the acid attacking the glottis, we may mention, that M. Alibert, who was examined in the case, stated he had seen several instances of this kind of death, where the acid had not penetrated beyond the back of the throat. M. Ollivier seems to doubt the facts here stated, but without reason. Many years ago an opinion in favour of death by poison was given by one of the Prussian Colleges in the case of a child where the poison did not reach the stomach, but manifestly produced violent inflammation of the rima glottidis, epiglottis, and larynx.*—*Ed. Med. and Surg. Journ. July,* 1830.—*Arch. Gén. Nov.* 1829.—*Bull. des Sc. Méd. Jan.* 1830.

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62. *Attempt to Murder by administering Sulphuric Acid.*—This case was the subject of trial lately at Strasbourg. An hospital servant of the military hospital of that town, wishing to get rid of his wife, administered a potion with a strong dose of tartar emetic, and subsequently persuaded her to take several spoonfuls of sulphuric acid, under pretence of relieving the vomiting. Violent symptoms were consequently produced, and a judicial inquiry was therefore set on foot. Sulphuric acid was found in a syrup of which the man had administered a part, and besides, the administration was proved by an acid stain on the bed-cover, and the corrosion of an iron spoon in which it had been given. The woman, who eventually recovered, gave very gentle evidence against her husband. After a trial which lasted seven hours, the jury found the man guilty by a majority of seven to five, and the judges uniting with the majority, the prisoner was condemned to death.—*Ibid.*

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63. *Poisoning with Bismuth.*—The sub-nitrate of bismuth, or magistery of bismuth, the common oxide of bismuth of the Pharmacopœia, has been long supposed to be a poison, and was fully proved to be so by the experiments of Orfila. The following case, recently extracted by M. Ferussac in his Journal from the *Heidelberg Klinische Annalen*, is the only instance with which we are acquainted of fatal poisoning from this salt, and fully establishes the propriety of arranging it with the active irritants. A man who had been in the habit of receiving from his surgeon chalk and magnesia for pyrosis, received the subnitrate of bismuth, by mistake, from the village barber, who kept an old medicine chest, and took about two drachms of it suspended in water, along with a little cream of tartar. He immediately felt burning pain in the throat; violent vomiting and purging soon followed; and next day Dr. Kerner, of Weinsperg, who relates the case, was called to his assistance. He found him affected with dreadful nausea, frequent brown vomiting, watery purging, an intermitting pulse, general coldness, and spasmodic contractions of the muscles, particularly of the legs. The back of the throat and uvula were inflamed, there was burning pain there, with difficulty in swallowing, the membrane of the nose was dry, the tongue covered with a dirty-yellow crust, and the patient complained of unquenchable thirst, and a constant nauseous taste.

The vomiting and diarrhœa having already lasted eleven hours, Dr. Kerner concluded that the poison was already all expelled, and confined his attention, therefore, to the treatment of the consecutive effects. Emulsive mixtures were administered with a little laudanum, and the warm bath was then employed with some advantage; the spasms abated, the pulse became firmer, and the patient passed the subsequent night tolerably. On the morning of the third day, however, the pain in the throat and difficulty in swallowing became much worse; the patient complained of constant nausea, metallic taste, and hiccup, and the hands and face began to swell. Leeches were applied to the neck, with some relief to the throat. But in the afternoon the skin became hot, the sight dim, the breathing laborious, and it was then discovered that no urine had been discharged from the time the poison was swallowed. On the fourth day he complained much of tension and extreme dryness of the palms and soles, the lower belly began to swell, and the patient was extremely weak and despondent.

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* Augustin's Repertorium, i. ii. 15.

On the fifth day there was more fever, some tenderness of the belly, and increased hiccup, with augmentation of the saliva, which was brown, and of a metallic taste. He was this day bled from the feet, and cataplasms were applied to the belly. The blood was florid-red and slightly buffy. On the sixth there had still been no urine passed, and none was secreted. Some symptoms of delirium, with tremors, made their appearance. On the seventh the lower belly was enormously distended, the stools were extremely fœtid, the tongue was so swelled that the throat could not be seen, the thirst and heat in the throat were excessive, and the man remarked constantly a smell like that of the sea-shore. On the eighth the urine for the first time began to flow, and was very pale. The fever went on increasing, and became attended with strong delirium, the respiration was more and more embarrassed, and the patient, in reply to questions, said he was quite well. In this state he lingered till the night of the ninth day, when he expired.

On inspection of the body, the alimentary canal was found affected along its whole course from the back of the mouth to the rectum; and in this long tract there were but few points quite healthy. The tonsils, the uvula, the back of the throat, the epiglottis, and the inner membrane of the larynx were gangrenous. The gullet was livid, but not inflamed; the stomach was strongly inflamed, especially in its great sac, the mucous coat being as it were macerated and detachable with extreme facility from the subjacent coat, which was covered with purple-red papulæ. The whole intestinal canal was much distended by gases, more or less inflamed, and here and there gangrenous. The gangrene was particularly well-marked at the rectum. The whole intestinal mucous membrane was very easily detached. The lower end of the spinal cord and inner surface of the heart were also inflamed. The lungs were healthy, but the wind-pipe chequered with blackish points. The kidneys and brain were in the natural state.—*Edinburgh Medical and Surgical Journal, from the Bulletin des Sciences Medicales, February,* 1830.

64. *Death from Inhaling Nitrous Ether.*—The only case of this kind we recollect to have seen recorded, is in the *Midland Medical and Surgical Reporter*, for August last. The subject of this case was a female servant; she was found dead in her bed, lying on her right side, with her arms folded across the breast as in a profound sleep, and the features not at all disturbed. On examination, "the coats of the stomach was found a little inflamed, with a small quantity of fluid in it, not exceeding one ounce—there was no gritty substance in this organ. The intestines leading from the stomach appeared turgid." The lungs were in such a high state of congestion as to prevent the passage of air through the cells. A large jar, containing upwards of three gallons of spirits of nitrous ether, was found in the patient's room, broken, and the contents spilled, and the apartment being small, the atmosphere was highly impregnated by the spirit, which was no doubt the cause of death.

It is much to be regretted that the examination of the body was confined to ascertaining the state of the lungs and stomach. The condition of the brain, the heart, and of the whole alimentary canal; the state of the blood, and the appearances of the surface of the body should have been described.

CHEMISTRY.

65. *Test for distinguishing different kinds of Rhubarb.*—According to M. Geiger, the ioduretted hydriodic acid produces different colours in different kinds of rhubarb, which enables us to distinguish them. Thus it gives to Muscovy rhubarb a green tinge—to China rhubarb a brown tinge—to English rhubarb a deep red colour, and to that of France a blue one.—*Journal de Chimie Médicale, Sept.* 1830.

66. *New mode of Preparing the Carbonate of Iron.*—Take of sulphate of iron and sub-carbonate of soda, each eight ounces. Pound each salt, and dissolve them separately in warm water. If necessary, filter. Being filtered and cool, mix the solutions in a deep vessel, capable of holding one or two gallons of water, which fill up cold. Stir, let subside, and then decant the clear liquid from the precipitate. Fill up again with water, and likewise again decant, and repeat this operation two or three times, so as to separate the soluble salts. Next put the precipitate on a filter of cotton or linen cloth, supported by a square frame. When the water has ceased to pass, gather into one hand the edges of the filter, so as to make it a sort of bag, and with the other twist it round from the holding hand downwards, so as to squeeze out the remaining water. The precipitate will now have the appearance of clay, too soft for moulding. With soft sugar and aromatic powder, in suitable proportions, make it into an electuary.

Thus we obtain a carbonate of iron, uniform in its properties, hardly deteriorated by the process it undergoes, and little liable to change by keeping.

The precipitated carbonate of iron, while yet moist, is soluble in carbonic acid. Hence a tea-spoonful of the above electuary is soon dissolved in a glass of ginger beer, except the aromatic powder it contains. It may be asked, therefore, whether an eligible medicine might not be obtained as follows —"Having filled a dozen of bottles with ginger beer, divide among them the precipitate from an ounce of sulphate of iron, and an ounce of sub-carbonate of soda, then cork, and set them aside, as usual, till they be ready. I presume that the production of carbonic acid, by the fermenting process, would go on as usual, and that when drawn in due time, we would find the carbonate of iron entirely dissolved in the ginger beer."—*Glasgow Medical Journal.*

MISCELLANEOUS.

67. *Influence of Temperature on the Mortality among Infants.*—We noticed in a preceding Volume, (Vol. V. p. 255,) the conclusion to which MM. Villermé and Milne Edwards have been led by their researches on this subject in France, and their confirmation from the researches of Dr. Trevisen in Italy. In the *Annales d'Hygiene Publique* for January and April last, are some further details relative to this subject, which are worthy of notice. It appears from the statistical tables of MM. Villerme and Milne Edwards, that in the northern parts of France, situated above the latitude of 49°, the mortality among children within the first three months of life was in 1818 as 1 to 7.96 births—south of the 45th degree of latitude it was only as 1 to 10.72; and in 1819 it was in the former district as 1 to 9.12, and in the latter as 1 to 11.7. At Dunkirk the mean temperature of the year is 11½ degrees less than at Toulon, the former being 50.4 F. the latter 62°. Thus again in the year 1818, the mortality for the same period of life throughout the whole of France varied from one death in 7.22 births during the month of January, to one in 9.8 in the month of May; and in 1819 from one in 7.66 during January to one in 9.97 during the month of May. During the three cold months of December, January, and February, the average for the two years was one in 7.81; during March and April it was one in 8.78; during May, June, and July, one in 9.75; during August and September one in 8.06; during October and November one in 8.68. The inference to be drawn from the numerical statements here given as to the mortality in different seasons is, that in the coldest months it is greatest, in the warm months at the beginning of summer least, but somewhat greater even in the warm months when the extreme heat of summer has endured for a considerable time.

The statistical inquiries of M. Caffort of Narbonne, in the middle of France, are also confirmatory of these results. In the course of fifteen years subsequent to 1810, the deaths in that town among children within the first three months was one in 9.57 births, which is intermediate between the mortality in the northern and southern departments of France as given above. Of 532 deaths among children of the same age, 163 occurred in the months of December, January, and February—113 in April, March, and May—125 in September, October, and November—and 131 in June, July, and August. On taking the proportion of deaths to births, the average for the winter quarter is one in 8.45 births, for the spring quarter one in 12.05, for the autumn quarter one in 10 65, and for the summer quarter one in 8.95.

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68. *Respect shown by the French Government to the Medical Profession.*—An "ordonnance" has just appeared conferring the decoration of the Legion of Honour on MM. Rostan, Biett, Lallemand, Andral *fils*, Chomel, and Barruel. Not many months ago several medical men in Paris were created Barons. The document above mentioned is followed by a report from the Minister of the Interior to the King, from which we subjoin an extract. "Medicine is at once the noblest of the sciences, and the most useful of professions—nevertheless it offers but few resources to those who practise, or to those who teach it. By the very nature of their pursuits physicians seem to be in some degree excluded from the ordinary paths of ambition. It is therefore just that the government should bestow upon them a large share of the honours awarded to merit."—*Lond. Med. and Surg. Journ. Dec.* 1830.

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69. *Prize for the best Essay on Cholera Morbus.*—Cholera has been committing the most frightful destruction among various nations of Asia, and is now extending its ravages into the Russian empire. The Russian government have offered a prize of 25,000 roubles, about 5,000 dollars, for the best essay on this disease. The essay must embrace the following points:—

1st. A clear and detailed account of the nature of the disease.

2d. A statement of the causes which give rise to it.

3d. A description of its mode of propagation.

4th. A demonstration, by the means of exact and faithful experiments, of its being communicable from one individual to another, if such be the fact.

5th. An indication of the measures to be adopted for self-preservation against its contagion, should the disease prove contagious, and

6th. Of the means best calculated to ensure a recovery.

Such treatises, or essays, may be written in the Russian, Latin, German, English, or Italian languages, and directed to the "Conseil de Medecine," (Medical Board,) at St. Petersburg, until the 1st (13) September, 1831. The name of the author is to be forwarded in a separate envelope.

AMERICAN INTELLIGENCE.

A Case of Poisoning, Treated with Emetics per anum. By S. C. Roe, M. D. of New York.—In November last, I was called to a stout, vigorous man of middle age, and intemperate habits, who had taken about three-quarters of an hour previously, two and a half ounces of laudanum for the purpose of destroying himself. The narcotic effects of the drug had already commenced. He was, however, easily aroused from his stupor, but, persisting in his determination of self-destruction, he obstinately refused to take any thing for his relief. I immediately introduced the œsophagus tube of a stomach pump into the rectum, and passed it gently on till I had introduced it up the intestinal canal to the extent of twenty-three inches. In doing this, whenever I met with the least resistance to its passage, I desisted, and pumped into the intestine a small quantity of fluid, which dilated it, and enabled me to pass on the tube some distance further without difficulty. In this way a second and a third obstruction was overcome, and the tube passed up to the desired extent, when I slowly pumped into the colon half a gallon of water, holding in solution fifteen grains of the tartarized antimony. This was no sooner accomplished than the patient complained of nausea, and an inclination to evacuate his bowels, which was quickly followed by full vomiting, repeated several times successively, but the disposition for alvine dejections passed off without effect. I now re-introduced the tube as before, and pumped into the intestine a quart of water, containing ten grains of the tartarized antimony, and in order to ensure the evacuation of a part of the antimonial solution per anum, lest the retention of so large a quantity might lead to ill consequences, I withdrew the tube to within three inches, and forced into the intestine a large common saline enema. This was, in a few minutes, followed by simultaneous and copious evacuations, both from the stomach and intestines, which did not cease until the primæ viæ seemed to be thoroughly drenched and emptied of their contents. Shortly after I left the patient to his repose, entirely relieved from the effects of his rashness, and found him the next morning suffering merely from languor and debility, consequent upon the active measures of the preceding evening.

In cases of poisoning, the employment of the stomach pump to extract directly from the stomach the offending material, is undoubtedly an invaluable resource, which the judicious physician will not lightly lay aside for less direct means, but cases often occur, where, as in the present instance, it is either impossible, or extremely difficult to introduce the tube into the stomach, and where the introduction of emetic medicines per anum, as high up the intestinal canal as possible, may be resorted to as in this case, with the best effects.

In some cases of obstinate constipation, and of colic, I have used the same means for the purpose of throwing up purgative medicines, and in every instance have succeeded in affording the patient speedy and entire relief.

New York, Jan. 5th, 1831.

Case of Small-pox occurring three days after Birth, the mother not having had the Disease since Childhood. By Mr. J. Mitchell. (Communicated by J. K. Mitchell, M. D.)—Mrs. Linton, twenty-five years of age, was affected in childhood by natural small-pox, of which she still bears distinct marks. On the 4th of October, 1830, she was delivered of a female child, of a healthy and vigorous appearance. On the 7th, three days after its birth, the child exhibited symptoms of fever; had inflamed eyelids, and presented a papillary eruption on the skin. On the 13th, nine days after birth, the pustules were in a state of complete maturity, evincing, by every ordinary characteristic, the presence of mild distinct small-pox. On the 20th of October, during the drying stage, there appeared on the child's skin, an eruption, resembling strongly-marked nettle-rash, such as not unfrequently followed the variolous eruption, during the epidemic of 1823-4.

The mother recollects having twice seen a case of small-pox at an unknown, but not distant period before her confinement. At least three or four weeks intervened between that event and her delivery. At the time of the birth of the child, no cases of small-pox existed in the neighbourhood, although there were instances of it in the city.

As but few cases of a similar character are on record, and only one or two are known in which the fœtus did not receive the disease from an infected mother, I have thought the record of this unusual event might not be unacceptable to your readers

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Aneurism of the Aorta, and Unusual Origin of Right Subclavian By J P Hopkinson, M. D.—The following case, somewhat novel in several particulars, lately came under my notice in the dissecting room of the University of Pennsylvania. The subject of it was a black female, apparently not much above twenty-five years of age, and presenting externally every aspect of fine robust health; every particular, however, respecting the history of the case prior to death is unknown. At first view she had apparently died of hæmoptysis, as the mouth, larynx, and trachea, showed evidences of a copious discharge of blood having recently taken place through them Upon opening the chest, the real state of things was displayed, and the immediate cause of death at once made evident.

A large aneurismal tumour had been formed on the anterior surface of the arch, and descending portion of the aorta. The sac might contain perhaps about two ounces, and was evidently formed by a rupture of the internal coats of the aorta, as a finger introduced into the cavity of the sac encountered a distinct opening leading into that great vessel; this opening was well defined, and projecting, in consequence of the external coat of the artery having been removed, or dissected up for some distance around The aneurismal tumour in its progress had encroached upon the lungs, and finally burst into them, forming a second sac there, part of the parietes of which was constituted by the pleura alone; the whole of the upper lobe of this lung was completely congested with blood, so as to resemble what is termed the hepatized lung, thus indicating the manner in which the hæmorrhage had occurred through the branches of the bronchia, and, thence into the trachea, producing probably immediate suffocation.

The more interesting part of this case remains yet to be described. The aneurismal predisposition had extended itself to all the large vessels arising from the arch of the aorta; this was seen in several enlargements or ampullæ, two of which were found upon one vessel, separated by a small portion of the vessel of the usual size. The right carotid arose separately from the aorta, at the spot which generally gives off the innominata, and in consequence of its aneurismal enlargement, and from its pursuing precisely the same course across the trachea as that trunk, resembling it in fact in every respect, this artery was at first supposed to be the innominata. It was soon discovered, however, that no branch whatever was given off until its division into internal and external carotid. The right subclavian was found pursuing its usual course under the scalenus anticus muscle to the axilla, and to furnish its usual branches; but in tracing it backwards to its origin, it was observed to lie close upon the bodies of the vertebræ, behind the trachea and œsophagus, and then crossing over obliquely to the left side, it was seen to arise from the descending aorta, at least half an inch below the root of the left subclavian. Cases of this variety in the arterial system are quoted from Tiedemann by Wardrop in his Treatise on Aneurism; and a similar one is described by the late Dr. Godman in his Anatomical Investigations. But what is most interesting and worthy of notice in this particular case, was the dilatation of the right carotid, so nearly resembling the innominata as to have deceived any operator. It also presents to us, most satisfactorily, examples of the two modes in which aneurisms may be formed, viz. rupture and dilatation.

Malformation of the Sexual Organs. By J. W. **Heustis**, M. D.—There is living in this vicinity a negro child six years of age with a *lusus* of the following character. When the child is standing the sexual parts present the profile and physiognomy of a female; no penis is visible, and there is the appearance of well formed labia on each side. The child is healthy, and otherwise well made and perfect. Upon a closer inspection the feminine aspect becomes equivocal: the legs being separated, the labia are found to be short and imperfect, and caused by a short and malformed penis springing from the usual place, but suddenly turning backwards on itself at an acute angle, and bound down to the raphé of the scrotum and the perineum The penis itself is small and pedunculated at its origin, but becomes larger towards the glans, which is of the natural size, and exposed, from the retraction of the prepuce. The penis is perforated by an urethra, which opens at the extremity, and of course near the anus. The scrotum is divided into two sacculi on either side by the penis, and still preserves the imperfect resemblance of the female labia, though rather more pendulous and corrugated. The testicles are mere rudiments, not larger than small beans, with a small congeries of vessels, but obviously incapable of ever assuming a masculine development; in short, they cause no visible distension or enlargement of the sacculi scroti. Should these malformed organs ever become developed, it would be a source of very considerable inconvenience, as it is not in the nature of things that any copulation could ever take place, since nothing but the glans is free and unconfined, and this directed behind, and located near the anus In short, this child appears at present to be neither male nor female, though as the former seems rather to be predominate, he has received the masculine appellation of *Willis*. I will notice the progress of the case, and report from time to time.

Cahawba, Nov. 24th, 1830.

Gonorrhœa produced by the Lochia.—In our Fifth Volume, page 203, we noticed a case of gonorrhœa produced in a man by cohabiting with his wife too soon after delivery, and also an instance in which an ulcer of the prepuce was induced by the same cause We took that occasion to express our views respecting the nature of gonorrhœa, and are happy to be able to adduce in support of them the following fact, communicated to us by our friend, Dr. J. K. **Mitchell**, of this city.

A gentleman, of unquestionable moral character, and who has always lived happily with his wife, was affected by all the usual symptoms of gonorrhœa, because of a too early intercourse after delivery. The purulent discharge from the urethra was followed by a glandular swelling in the groin which terminated in an abscess.

A Case of Labour in which the Placenta was delivered some time before the Fœtus. By Dr. **Caleb** W. **Cloud**, of Lexington, Kentucky.—On the 3d of February, 1830, at 11 o'clock, P. M. I was called to visit a woman, who was said to be in labour. I found her in considerable pain, with great uterine hæmorrhage: she said her labour was premature, and that she was in the eighth month of her pregnancy. On examination per vaginam, I found the os uteri considerably dilated; one knee of the fœtus, and a part of the placenta could also be distinguished. The pain subsiding, I gave her syrup of rhubarb and laudanum, and left her for the night.

At 8 o'clock A. M. of the ensuing day, I saw her again, when the pain was slight, though the hæmorrhage continued. At 12 o'clock M. the uterine pain was increased, and the bleeding had become quite alarming. On examining again, I found the membranes protruded, which were soon afterwards ruptured, when a large portion of the placenta, together with the umbilical cord, presented. Pulsation was felt in the cord, but no portion of the child could be reached.

In this situation, I gave her fifteen grains of ergot, and after an interval of twenty or thirty minutes, the same quantity was repeated. In half an hour from the exhibition of the last dose, the placenta was expelled, and the hæmorrhage immediately ceased. Still the child could not be felt per vaginam, and I had some apprehension at the time that it might have escaped into the cavity of the abdomen, by a rupture of the uterus. The woman, however, being a good deal fatigued, was permitted to rest for two hours or more; when there being no return of pain, or descent of the fœtus, I gave her fifteen or twenty grains of ergot, and repeated the same quantity in twenty minutes. Some pain now came on; but, being slight and ineffectual, I introduced the hand, and dislodged the child from the os pubis, on which it rested, inclining to the right side: after this I was enabled to reach it with the forceps, (the breech presenting,) and in this way it was delivered.

After delivery the woman complained of great debility, with sick stomach and vomiting—these, however, were soon relieved, and she recovered speedily. The child was well formed, and of the usual size. The mother is about thirty-seven years of age: this was her eighth pregnancy, all the preceding labours being natural; and she knows not of any cause to have produced premature or preternatural labour in the present case.—*Transylvania Journal of Medicine and the Associate Sciences, May,* 1830.

The above case has been republished in this Journal, not from its possessing any remarkable peculiarity in itself, but in consequence of the very *novel mode of treatment* to which the author had recourse; and because of the very *circumstantial mode he has pursued in relating it.* For the occurrence of placental presentations have been sufficiently numerous not to excite surprise; and instances of the delivery of the placenta before the child are on record—yet the latter are confessedly rare, and have always been looked upon as *dangerous occurrences,* especially when not treated after a *certain manner*; but if the *treatment* of the case in question be an *improvement* in the art, then is it most *satisfactorily proved,* that the fears of the most experienced and best instructed accoucheurs, have been without foundation; for the woman did not die, though not a *single principle* of those supposed to be so well established by old-fashioned practitioners was acted upon. As a novel mode of practice then, and as presented, if not under the avowed sanction, at least under the countenance of a respectable cotemporary, it appears to be our duty to inquire into its value.

The relator of this case begins by stating that his patient had "considerable pain with *great uterine hæmorrhage;*" and that the os uteri was considerably dilated;" indeed, sufficient it would appear to discover that one of the knees of the child, and a portion of the placenta presented; though be it remembered, the membranes had not yet ruptured!! Here at once the author discovers a proficiency in the art of "*touching,*" that is truly admirable—for we will be bold enough to say, without fear of contradiction, that there is not a single practitioner in this large city that would pretend to such *nicety of touch,* as to distinguish a knee from the elbow of an eighth month child while in utero, and the membranes at the same time entire. But if we be *surprised* at the accuracy of touch of the narrator of the case, we shall be absolutely *astonished* at his novel and sagacious treatment of it.

We would ask, what a common practitioner of midwifery, let him be ever so well instructed, or however experienced, would have done in a similar case? would he have treated the case with such prudence and sagacity as was displayed by Dr. C.? We are sure he would not—no, he would have been old-fashioned enough to have had fears and anxieties about his patient lest the hæmorrhage should increase in violence, and his patient succumb if aid were not at hand, and to insure this, he would have put himself to the trouble of staying with his patient all night; especially if he lived at any distance from her. Or he would very probably have proceeded to do what has been recommended should be done in such cases by all writers upon this subject, namely, to deliver the child, as the mouth of the uterus was considerably opened, which would have enabled him to perform this operation without difficulty But this treatment of the case would have been wrong, very wrong, if the new plan of Dr. C. be right.

It is true, Dr. C does not mention whether the os uteri was rigid, or yielding—an omission of some consequence in the history of this case, as no reasons are assigned for the plan he adopted, a plan contrary to all former usage, but which this gentleman must have regarded as vulgar or ill-founded prejudices: for it is not to be supposed he was ignorant of what the best authorities have said upon this subject; though he has not deemed it essential to give his reasons for departing so widely from generally received opinion Nor has he explained why he used the "syrup of rhubarb and laudanum" in uterine hæmorrhage, caused by the presentation of the placenta, and at a moment when the flooding was "great," instead of turning, or bringing down the feet, when the "os uteri was considerably dilated," and "pain subsiding"

After prescribing the syrup of rhubarb and laudanum he left *his patient for the night*: how can we sufficiently admire this gentleman's confidence, either in the accommodating spirit of nature, or in the efficacy of the syrup of rhubarb and laudanum to delay all danger in his patient until he should again visit her! This he did at 8 o'clock next morning, nine hours after his first visit. And as a proof he was not mistaken in his calculation, it was 12 o'clock M. before the uterine pains increased, and the hæmorrhage became *alarming*, though there was a constant and "great uterine hæmorrhage" from the moment of his first visit until noon the day following. At this time, "on examining again, I found the membranes protruded, which were soon after ruptured, when a large portion of the placenta, together with the umbilical cord, presented. *Pulsation was felt in the cord, but no portion of the child could be felt.*" What became of the knee that presented, and could be *distinguished to be a knee* before the rupture of the membranes, yet could not be felt after the waters were discharged, and the placenta thrown down or expelled?

Here then is a situation, in which the cautious routine practitioner would again have committed himself—for he would have proceeded instantly to deliver, that he might, (according to his notion of doing what was right in such a case,) preserve the child, as he would know it was living by *pulsation being felt in the cord.* But this would be all wrong, agreeably to the opinion, or the practice of the relator of this case: no, you should do no such thing, you should give repeated doses of ergot, and *wait two hours* for the woman to recover strength; for, by this time the child will be certainly dead, and therefore cannot suffer, by the hand being introduced to "dislodge it from the *os pubis*, on which it rested," or by applying the *forceps to the breech*!!! Yet we are informed subsequently, that the patient "recovered speedily." What a triumph of skill was here!

We have not been able, from reading this case, to determine *exactly* Dr. C's. views in relating it—was it to proclaim the superiority of nature over art? or was it to proclaim the following *new* principles in the practice of midwifery, and give contradiction to *all the rules* that have been laid down for the management of such cases; and which have been *by some* supposed to derive their value from the experience of at least a century.

Principle the first. That the medical world has been in error for at least an hundred years, in believing it to be necessary or sound practice, to turn and deliver, in violent uterine hæmorrhage, when the *os uteri is opened to a considerable extent.*

Principle the second That the practitioner should never expose himself to unnecessary fatigue, or manifest anxiety for the situation of a patient, by staying with one who it beset with a flooding—for, to prevent danger it is only necessary to give "syrup of rhubarb and laudanum," and trust the rest to chance until he return.

Principle the third. Never to deliver by *the hand*, with a view to save the child, though you have every evidence that it is alive, as the cord has pulsation in it, though the placenta be delivered.

Principle the fourth. In cases like the one just related, never be in a hurry to deliver by the hand, however much is to be apprehended from the extent of the flooding, provided the *breech present*, for in this case you may wait two hours for the woman to recover her strength; and then you should deliver with the forceps, though you are obliged to pass the hand into the uterus, "to dislodge the breech from the os pubis, on which it may have rested." For, does not the success of this case prove how silly all the writers upon midwifery have been, when they condemned this practice as contrary to sound principles, and to the safety of the child?

In establishing these important *principles* from the case just related, we mean not to force their adoption upon any gentleman who may have objections to them, from either experience, or education; we offer them for no more than they are worth; but from their *bold, and novel nature*, it will, we apprehend, (unfortunately for the author of them,) be a long time *before their value will be perceived.*

W. P. D.

Case of Bilious Fever. By J. F. Fletcher, M. D. of Salvesa, Mercer county, Kentucky.—Miss P. Armstrong, aged eighteen, residing near this village, had for some months laboured under delicate health. at length she was attacked with the ordinary autumnal fever of the country, which obstinately resisting a variety of domestic medicines, on the 13th of July my assistance was requested. I found her under great depression of spirits; skin pale, and inclined to coldness; some head-ache; much uneasiness about the præcordia; great thirst, with loss of appetite; tongue loaded; pulse feeble, compressed, and alternating; with considerable torpor in the bowels, and paleness in the alvine discharges. With the view of unlocking the portal circle, and restoring the biliary secretions, I gave her *forty grains of calomel, aloes, and rhubarb*; directing her attendants to repeat the dose if no operation was obtained by [illegible] time.

July 14th. No operation; premised venesection; ordered an injection; a scanty thin stool obtained; gave *two scruples of calomel*, and at four o'clock directed that she should take *two scruples more*, aided by oil and injections.

15th. No important change in the symptoms; ordered the warm bath. Eight table-spoonsful of castor oil had been taken, and half a dozen injections administered, without effect. She now took 15 *grs. of scammony*, and 15 *grs. of jalap every six hours.*

16th. A thin discharge this morning—pulse more feeble, system highly irritable, appearances discouraging; gave her during the day and early part of the night, *large doses of scammony and croton oil;* at 11 P. M. a copious thin discharge obtained, succeeded by vomiting and alarming debility. Wine whey, camphorated julep, and sinapisms to the stomach and extremities were resorted to.

17th. Continued the wine and julep. The extreme irritability of the stomach this morning, which heretofore had surprisingly retained every thing administered, and the evidently sinking state of my patient, strongly admonished me of the necessity of a *different plan of treatment.* I now stated to her friends, her imminent danger, explained in detail my views of her critical situation, and assured them of my firm belief, that nothing but calomel freely administered, presented the slightest prospect of saving her. I used no concealment, but frankly suggested all the consequences that might accompany this practice. After some hesitation, I was fully authorized to take my course without restriction. Consistent discharges being the great object, at 4 P. M. I gave her *two drachms of calomel*, which appeared to have a happy effect in soothing the irritability of the stomach.

18*th*. No operation this morning: pulse however slightly improved, and system more calm. *Gave two drachms of calomel;* at *twelve o'clock two drachms more*, and *pills of scammony*, in the evening.

19*th*. Two small and consistent but highly fœtid operations procured by stimulating injections. gave her *three drachms of calomel*, followed at 8 P. M. by an ordinary enema, which brought with it a large discharge of the darkest and most offensive matter; administered cordials freely. Patient's gums slightly affected by the mercury.

20*th*. Another free discharge of the same character as the last obtained by injection; pulse better, and my patient's strength and spirits materially improved; ptyalism inconsiderable.

20*th*. Procured within the last twenty-four hours three consistent stools by injections: symptoms favourable. *Gave a drachm of calomel.*

21*st*. No operation since yesterday morning, patient more dull. Gums nearly well: gave *two drachms of calomel*, to be assisted as usual by enemata.

22*d*. Several consistent discharges have been obtained *without injections*. Patient's appetite reviving, with an evident increase of strength and cheerfulness. Gums sore but not troublesome. directed her bowels to be kept open with pills of aloes and rhubarb, assisted by oil if necessary.

25*th*. Patient recovering fast; appetite good. Gums well.

30*th*. Able to take exercise in the house.

August 10*th*. Patient rides out visiting her friends, and is convalescent.

Nov. 1*st*. Has entirely recovered her health and spirits.—*Transylvania Journal of Medicine, May*, 1830.

We have copied the preceding case certainly not as an example for imitation, but as an illustration of the calomel practice in fevers, and of the extent to which that medicine may sometimes be administered without producing the *speedy destruction* of the patient.

Jackson's *Introductory Lecture*.—The lecture delivered by Dr. Jackson on the opening of his course of physiology has been published by the class. When we say that this lecture is every way worthy of the reputation of its learned, eloquent, and philosophical author, we conceive that but little more could be said in its praise.

It is to be regretted that the committee to whom was entrusted the office of having it printed, have not had it got up in a manner more creditable to the state of the typographical art in our city.

Gedding's *Introductory Lecture*.—We have been favoured with a copy of this lecture, delivered in November last, and which has been published by the class. It is characterized by the erudition and zeal for the advancement of his art, for which the author is so eminently distinguished.

Goupil's *Exposition of the New Medical Doctrine*.—Dr. Josiah C. Nott, of Columbia, S. C. informs us that he has translated this interesting work, and that it will shortly be published.

A Rational Exposition of the Physical Signs of the Diseases of the Lungs and Pleura. By Charles J. B. Williams.—We some time since, (in the No. for November, 1828,) expressed the most favourable opinion of this work, and we are happy to find that Messrs. Carey & Lea have been induced to re-publish it. We recommend it to the student.

Researches Relative to the Morbid and Curative Effects of Loss of Blood. By Marshall Hall.—Messrs. Carey & Hart have recently published this work.

The author's hypotheses are not always very clear or satisfactory, but his practical remarks are very valuable, and we think that no one will read them without advantage.

Beclard's *Elements of General Anatomy.*—The name of Beclard is a sufficient recommendation for a work on general anatomy. In our next No. we shall notice the translation by Dr. J. Togno, which has lately appeared, of the Anatomie Générale of this celebrated anatomist.

Ratier's *Practical Formulary of the Parisian Hospitals.*—This is an excellent little work, presenting sketches of the different hospitals of Paris, an exposition of the practice and some of the peculiar views of the distinguished physicians and surgeons of these establishments, and the formulæ employed by them. The profession will know how to value prescriptions coming from such high authorities, and sanctioned by practitioners of such extensive experience as are the attendants of these hospitals. We may notice, that having occasion a few days since to consult the formula for the preparation of the ointment of hydriodate of potash, we found, that by a typographical error, the proportions are stated to be half an *ounce* of the hydriodate of potash to one and a half *drachms* of lard, instead of half a *drachm* of the former to one and a half *ounces* of the latter. It is unnecessary to remark how important exemption from typographical mistakes is in works of this kind. The proofs of such books should be always examined by a competent person, and every possible pains taken to prevent errors. This work has been published by C. S. Francis, New York

Directions for Making Anatomical Preparations.—Messrs. Carey & Lea have in press, Directions for Making Anatomical Preparations, based upon the works of Marjolin, Breschet, Pole, and Swan, by Usher Parsons, M. D. Professor of Anatomy and Surgery in Providence College, R. I.

Larrey's *Surgical Memoirs of the Russian Campaign.*—Messrs. Carey & Lea have in press a translation of this highly interesting and valuable work.

Boisseau's *Physiological Pyretology.*—A translation of this work, from the fourth Paris edition, which has just appeared, is preparing, and will shortly be published by Messrs. Carey & Lea.

Extract of Cainça.—Messrs. D. B. Smith and W. Hodgson, Jr. apothecaries, druggists, and chemists, N. E. corner of Arch and Sixth streets, have received a small quantity of the extract of Cainça, (*Chioccocca anguifuga,*) a medicine highly recommended as a diuretic, (see Vol. II. p. 431, and Vol. VI. p. 236, of this Journal,) which they kindly offer to furnish to physicians disposed to try its virtue. We hope some of our contributors will test its virtues by careful experiments, and communicate to us the results.

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Philadelphia, January 20, 1830.

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NATHANIEL CHAPMAN, M. D.
On the Practice of Medicine.

WM. P. DEWEES, M. D.
On Midwifery.

THOS. HARRIS, M. D.
SURGEON U. S. NAVY,
On Operative Surgery.

SAML. JACKSON, M. D.
On Materia Medica.

WM. E. HORNER, M.D.
On Anatomy.

JNO. K. MITCHELL, M. D.
On Chemistry.

JOHN BELL, M. D.
On the Institutes of Medicine, and Medical Jurisprudence.

HUGH L. HODGE, M. D.
On the Principles of Surgery.

Philadelphia, January 14, 1830.

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Home on Tumours.
Howship on Strictures in the Colon.
Rennie on Asthma, Consumption, &c.
Liston's Elements of Surgery.
Scudamore on Consumption.
Guthrie on the Arteries.
Jackson on Febrile Diseases.
Beale on Deformities.
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England on the Kidneys.
Lawrence on the Venereal Diseases of the Eye.
Blake on Delirium.
Searle on Cholera.
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Seymour on Ovaria.
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Ballingall's Military Surgery.
Marshall on Vaccination.
Tweedie on Fever.
Hennen's Medical Topography.
Kœcker on the Teeth.
Abernethy's Lectures on Surgery.
Granger's Anatomy.
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Christison on Poisons.
Marley on Children.
Brown's Medical Essays.
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Carus's Comparative Anatomy.
Lawrence on Ruptures.
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Bateman on Cutaneous Diseases.
Hood's Physiology.
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Stephens on Hernia.
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Travers on Venereal.
Elliotson's Blumenbach's Physiology.
Swan on the Nerves.
Wilson on West India Fevers.
Munro on the Brain.
Guthrie on the Eye.
Guthrie on Gun-shot Wounds.
Young's Introduction to Medical Literature.
John Bell's Surgery—new edition, by Charles Bell, 4 vols. 8vo.
Plumbe on the Skin.
Andral's Pathology.
Parry's Posthumous Works.
Paris and Fonblanque's Medical Jurisprudence.
Fox on the Teeth.
Parry's Pathology.
Munro's Anatomy of the Stomach and Bowels.

Traité des Exhumations Juridiques, par Orfila and Leseur. 2 vols.
Élemens d'Histoire Naturelle Medicale, par Richond. 2 vols.
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Meckel's Anatomie Générale.
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Breschet's Systeme Veineux, *folio, fine plates.*
Cruveilhier's Anatomie Pathologiques, *folio, fine plates.*
Broussais's Examen.
Broussais's Phlegmasies.
Chopart's Maladies des Voies Urinaires.
Maury's Traité Complet de l'Art du Dentiste.
Fourcault's Lois de l'Organisme Vivant.

After the broad, hard surface externally had become somewhat elevated, and had given place in its centre to a small compressible space, and after due consultation with my medical brethren, Drs. Chandler and Berry, I punctured the abscess with the common abscess lancet. About half a pint of thick pus was discharged, to the great relief of the unhappy sufferer. The orifice was closed with an adhesive strap. The third day it was reöpened, and a small quantity of matter escaped; after which the incision healed, and the lady soon recovered. She has since given birth to another child, without any bad consequences.

The most remarkable feature in this case is the expulsion of air through the urethra. The abscess may serve to some as a practical lesson; yet almost every practitioner of long experience has doubtless witnessed similar occurrences.

St. Albans, December 4th, 1833.

Notice of a curious Case of Somnambulism. By E. Bartlett, M. D. (Extracted from a Letter to the Editor.)—Between three and four weeks ago, I had the pleasure of seeing the Springfield somnambulist, accounts of whom you have probably seen in the newspapers. The extraordinary part of the case consisted in the marvellous susceptibility of the eye to its natural stimulus. I played a game of back-gammon with the girl during one of the paroxysms. She saw perfectly well—calling her throws of the dice, and moving her pieces regularly—through several thicknesses of a white handkerchief bound closely over her eyes. She could read, in a room lighted in the usual manner, with *eight* folds of a linen handkerchief over her eyes. These facts are perfectly certain. In other respects the case resembled many that have been reported; as, for instance, in her not remembering during her lucid intervals any thing which occurred during the paroxysms, though she recollected during one paroxysm occurrences which had taken place in preceding ones. During the paroxysm there was determination of blood to the head, and head-ache. The menses were suppressed. When I saw her, she was under the care of Dr. Woodward, the intelligent and scientific physician of the State Lunatic Asylum, at Worcester. I consider the case one of great physiological and pathological interest, as showing with what an inconceivably small quantity of light it is possible for the eye to perform its functions. We hope to have an account of the case from Dr. W. for the Medical Magazine.

It occurred to me, after finishing my letter, that this short notice of the case might interest you. I see, by the papers of yesterday, that the girl is cured.

[We look with great anxiety for the promised account of this interesting case.]—Ed.

Case of Pityriasis Rubra cured by Chloride of Lime. By John B. Zabriskie, M. D.—Martha Lewis, aged 61, of a melancholic temperament, slender make, rather hypochondriac, and frequently suffering from a slight derangement of her intellect, found an eruption upon her arms and legs, characterized by a slight elevation of the cuticle, of a red colour, and covered by small whitish scales. They increased, running in a tortuous or serpentine form, covering the skin of a considerable part of her arms and legs, and itching very much at night. The colour was darker in the day time, being nearly purple, but when warm in bed they were of a much brighter red, were more swelled, and were very troublesome. The appetite and general health continued unimpaired. For this she used saline purgatives, sulphur internally and externally, the decoction of bitter sweet, the tincture of iodine, warm baths, the decoction of the woods, mercury internally and externally, and lastly the solution of the chloride of lime externally as a lotion. As soon as she used this last, the eruption began to improve and soon to disappear. It relieved the heat, itching, and other troublesome symptoms immediately. There now remains only some slight discoloration of the skin.

Note from Dr. W. C. Wallace, *of New York, relative to the Anterior Membrane of the Eyeballs.*—After Dr. Wallace's communication was printed off, (see p. 404 of this No.) we received the following postscript.

"P. S. That the conjunctiva is covered with a peculiar cuticle I have no doubt. In some cats the membrana nictitans is edged with black. Where the conjunctiva joins the eyelids there is the same colour. When this coloured portion is scraped off after being heated, the conjunctiva appears entire beneath it. The cuticle covering the conjunctiva seems entitled to the description usually given of the conjunctiva. It appears to communicate with the general epidermis, and to cover the conjunctiva and the cornea. It seems thicker and more transparent over the cornea than elsewhere."

Beaumont's *Experiments on Digestion.*—It is probably known to most of our readers that Dr. Beaumont of the United States' Army has been taking advantage of an opportunity afforded by a soldier who has a fistulous opening into his stomach, to institute a series of experiments on digestion. We are happy to announce that Dr. B. has published an account of these experiments. We did not receive a copy of the work, however, until too late to prepare for this number such a review as the importance of the subject, and the valuable nature of the experiments required. It will be fully noticed in our next.

Bourgery's *Treatise on the Minor Surgical Operations.*—A translation of this useful work, with notes and an appendix, by Drs. Roberts and Kissam, of New York, has just appeared. It should be in the hands of every student.

Wood and Bache's *Dispensatory of the United States.*—The favourable opinion we expressed of this work has been confirmed by the verdict of the profession. A new edition has been called for within less than a year from the publication of the first.

Tuson's *Dissector's Guide.*—Messrs. Allen and Ticknor, of Boston, have republished this excellent little work, with additions by Dr. Lewis, demonstrator of anatomy in the medical school at Harvard university. We shall notice it more particularly in our next.

Dartmouth College.—The number of students in November last, was, in the classical department, 156; attending the medical lectures, 100.

Transylvania University.—The medical class, during the present session, amounts to 260.

Berkshire Medical Institution.—The number of students, in November last, was 104.